Maryland Agricultural College Bulletin.

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Maryland Agricultural College.

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THE

MARYLAND

AGRICULTURAL COLLEGE

COLLEGE PARK, MARYLAND

1856 1911

CATALOGUE

1911-12

THE

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AGRICULTURAL COLLEGE

COLLEGE PARK, MARYLAND

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CATALOGUE

1911-12

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*On and after July 1, 1911, Professor of Civil Engineering and Mathematics.
†On and after July 1, 1911, Professor of Electrical Engineering and Physics.

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‡_____
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MR. MARCUS A. IDE, WOODSTOCK, MD.,
Natural Incubation.

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Artificial Incubation.

PROF. J. S. JEFFREY, N. C. AGRICULTURAL COLLEGE,
Fireless Brooders.

PROF. C. A. ROGERS, CORNELL UNIVERSITY,
Principles of Feeding Laying Hens.
Principles of Breeding.

MRS. MAYBELL C. EARP, BELTSVILLE, MD.,
Feeding Young Chicks.

MR. CHARLES E. BRYAN, HAVRE DE GRACE, MD.,
The Colony System of Poultry Farming.

DR. GEORGE EDWARD GAGE, MARYLAND AGRICULTURAL EXPERIMENT STATION,
Chick Diseases.

MR. T. F. McGREW, SCRANTON, PA.,
The American Standard of Perfection.

DR. G. B. MORSE, U. S. DEPARTMENT OF AGRICULTURE,
Diseases of Adult Fowls.

MR. J. C. HUNTER, VIENNA, VA.,
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MR. JOHN H. CARTER, WASHINGTON, D. C.,
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MR. JOHN H. ROBINSON, BOSTON, MASS.,
The Production of Broilers and Roasters.
Poultry Keeping in the Little Compton District.

HORTICULTURAL COURSE (Two Weeks).

PROF. A. L. QUAINTANCE. ENTOMOLOGIST, U. S. DEPARTMENT OF AGRICULTURE.
The Control of some important Insects, the Pests of the Orchard.

PROF. W. M. SCOTT, PATHOLOGIST, U. S. DEPARTMENT OF AGRICULTURE.
Lime Sulphur Wash as a Fungicide for common Diseases of Peach and Apple.

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Bee Keeping in Maryland.

PROF. H. P. GOULD, FOMOLOGIST, U. S. DEPARTMENT OF AGRICULTURE.
Orcharding in the East.

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Control of Peach and Apple Tree Diseases.

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Truck Crops for the Farmer.

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Poultry Management.

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CALENDAR.

1911.

THIRD TERM.

Monday, March 20th—Third Term Begins.

Wednesday, April 12th, noon, to Tuesday, April 18th, 1 P. M.—Easter Recess.

Monday, May 15th—Submitting of Theses.

Friday, June 9th—Final Meeting of Trustees.

Sunday, June 11th—Baccalaureate Sermon.

Monday, June 12th—Class Day.

Tuesday, June 13th—Alumni Day.

Wednesday, June 14th, 11 A. M.—Commencement Day Exercises.

1911-12.

FIRST TERM.

Tuesday, September 12th, and Wednesday, September 13th—Entrance Examinations.

Thursday, September 14th, 1 P. M.—College Work Begins.

Wednesday, December 20th, noon—First Term Ends.

Wednesday, December 20th, noon, to Tuesday, January 2nd, noon—Christmas Recess.

SECOND TERM.

Tuesday, January 2nd, noon—Second Term Begins.

Wednesday, January 3rd—Special Winter Term in Agriculture Begins.

Thursday, February 1st—Filing Subjects of Theses.

Saturday, March 16th—Second Term and Special Winter Courses in Agriculture End.

THIRD TERM.

Monday, March 18th—Third Term Begins.

Wednesday, April 3rd, noon, to Tuesday, April 9th, 1 P. M.—Easter Recess.

Wednesday, May 15th—Submitting of Theses.

Sunday, June 9th—Baccalaureate Sermon.

Monday, June 10th—Class Day.

Tuesday, June 11th—Alumni Day.

Wednesday, June 12th, 11 A. M.—Commencement Day Exercises.

MARYLAND AGRICULTURAL COLLEGE.

HISTORY.

"An act to establish and endow an agricultural college in the State of Maryland" was passed by the legislature of the State in 1856, and is found in Chapter 97 of the Laws of Maryland for that year. The scope of this act of incorporation is shown by the preamble, which reads as follows:

> WHEREAS, It has been represented to the Legislature, that certain wise and virtuous citizens are desirous of instituting and establishing in some convenient locality within this State, an Agricultural College and Model Farm, in which the youthful student may especially be instructed in those arts and sciences indispensable to successful agricultural pursuits; and
>
> WHEREAS, It doth appear to this Legislature, that while the wise and learned in the present age hath cultivated with laudable industry, and applied with admirable success the arts and sciences to other pursuits, the most necessary, useful and honorable pursuits of agriculturists have so far been lamentably neglected; and
>
> WHEREAS, It is the province and duty of the Legislature to encourage and aid the philanthropic citizens in their efforts to disseminate useful knowledge by establishing an Agricultural College and Model Farm, which shall, in addition to the usual course of scholastic training, particularly indoctrinate the youth of Maryland, theoretically and practically, in those arts and sciences, which with good manners and morals, shall enable them to subdue the earth and elevate the State to the lofty position its advantages in soil, climate, etc., and the moral and mental capacities of its citizens, entitle it to attain.

This was the first effort in the Western Hemisphere to use scientific investigation for the advancement of the vocation of Agriculture, since at that time no other institution of a similar character existed in the United States. Under the charter thus granted to a party of public-spirited individuals, the original College building was erected, and its doors were opened to students in the fall of 1859.

For three years it was conducted as a private institution. In 1862, the Congress of the United States, recognizing the valuable work in the cause of practical education which such colleges could achieve for the country, passed the "Land Grant Act." This Act granted each State and Territory which should claim its benefit a proportionate amount of unclaimed Western lands, in place of scrip, the proceeds from the sale of which should apply under certain conditions to the establishment and maintenance of at least one college in which the "leading object" should be, "without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the States" might "respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life." This grant having been formally accepted by the General Assembly of Maryland, and the Maryland Agricultural College being named as the beneficiary of the grant, the College thus became, in part, at least, a State institution, and such it is at the present time.

During recent years the College has made a steady growth. This fact is evidenced by the increased number of students availing themselves of its facilities; by the erection of many new buildings—the library and gymnasium building, the chemical laboratory, Morrill Hall, the sanatarium, the administration building and barracks, and the engineering building; as well as by the establishment of the Department of Farmers' Institutes and the State Departments of Horticulture, Entomology and Vegetable Pathology, and Chemistry (Fertilizer and Feed Control). As a consequence of its development under such favorable auspices the institution has become the most important factor in the agricultural and industrial development of the State.

The State Bureau of Forestry cooperates with the College, the Director being, by the terms of his appointment, Lecturer on Forestry at the Agricultural College.

LOCATION AND DESCRIPTION.

The Maryland Agricultural College is located in Prince George County, Maryland, on the line of the Washington Branch of the B. & O. R. R., eight miles from Washington, and thirty-two miles from Baltimore. At least nine trains a day from each city stop at College Station, thus making the place easily accessible from all parts of the State. Hyattsville is the telegraph station. Telephone connection is made with the Chesapeake and Potomac lines.

The College grounds front on the Baltimore and Washington turnpike. The suburban town of Hyattsville is two and one-half miles to the south, and Laurel, the largest town in the county, is thirteen miles to the north on the same road. Access to these towns and to Washington may be had by steam and electric railway. The site of the College is particularly beautiful. The buildings occupy the crest of a commanding hill, which is covered with forest trees, and overlooks the entire surrounding country. In front, extending to the turnpike, is a broad, rolling campus, the drill ground and athletic field of the students. In the rear are the farm buildings and barn. A quarter of a mile to the northeast are the buildings of the Experiment Station. The College farm contains about three hundred acres, and is devoted to fields, gardens, orchards, vineyard, poultry yards, etc., used for experimental purposes and demonstration work in agriculture and horticulture.

The general appearance of the College grounds is exceedingly attractive. They are tastefully laid off in lawns and terraces, which are ornamented with shrubbery and flower beds. The view from the grove and campus cannot be surpassed.

The location of the College is healthful; the sanitary conditions are excellent. No better proof of this can be given than that there has been practically no serious cases of illness among the students for many years.

COLLEGE BUILDINGS.

The original barracks, erected in 1859, is a five-story brick building, containing the student quarters and the Domestic De-

partment. The dormitories are large, well ventilated and provided with fire escapes, bath and toilet rooms. All the buildings are lighted by gas and electricity and heated by steam from the central plant on the College grounds.

In 1894 the building used as the gymnasium and library was erected. The gymnasium, on the ground floor, is well furnished with modern athletic appliances. The library and reading room is on the second floor, and is large, well-lighted and commodious.

The Departments of Civil, Electrical and Mechanical Engineering and the Department of Physics are located in the two-story brick building erected in 1896, the brick annex erected in 1904, and the brick addition constructed in 1909. This latter, which consists of a main building four stories in height and a wing three stories in height, is so arranged as to form with the buildings previously erected, a concrete whole. In this group of buildings are found laboratories of various kinds, wood and machine shops, a forge room and foundry, drawing rooms, blue print rooms, instrument rooms, lecture rooms, offices, a library room, lavatories, etc. The equipment is modern in every respect and the facilities for work in the above named departments are greatly increased.

The chemical building was completed in 1897, and is now thoroughly equipped. It contains several lecture rooms and laboratories for practical work and the analysis of fertilizers and feeding materials for domestic animals. This work is assigned by an Act of the General Assembly to the Professor of Chemistry at this College, who thereby becomes the State Chemist.

Another addition to the group of College buildings is Morrill Hall, erected in 1898. This building provides accommodations for the Departments of Agriculture, Horticulture, Entomology, Vegetable Pathology and Veterinary Science. A greenhouse for experimental work in entomology and vegetable pathology was erected in 1904.

The College Sanitarium, completed in 1901, has proved a most efficient means of isolating infectious diseases which might otherwise have become epidemic, thus seriously embarrassing College work. It contains ample room for all emergencies, and is furnished with modern hospital facilities. An experienced nurse is in constant attendance, and the College surgeon is present every day at a fixed hour to treat any cadet requiring his services.

In 1904 there was added the Administration Building, which contains not only the auditorium and offices, but dormitories as well. These latter double the capacity of the College for the accommodation of students.

Appreciating the value and needs of the institution, the State Legislature has from time to time appropriated funds wherewith buildings could be erected or renovated and equipment secured.

Among recent improvements are: A complete renovation of the original College barracks; a modern steam heating plant; gas and electric lighting; lavatories; steam laundry; forced ventilation; etc.; all of which furnish quarters and classrooms with unusually good sanitary arrangements.

GENERAL AIM AND PURPOSE.

The Agricultural College is the State school of science and technology. While seeking, first of all, to perform the functions of an agricultural college, its sphere of work has been widened to embrace all the sciences akin to agriculture, and all the arts related to mechanical training. To these special and prominent lines of work have been added such branches of study as are necessary for a liberal education, for the development of the intelligent citizen and for general culture. The purpose of this college is to give young men anxious to prepare themselves for the active duties of life such training in the lecture room and laboratory as will enable them to take their places in the industrial world well prepared for the fierce competition of the day.

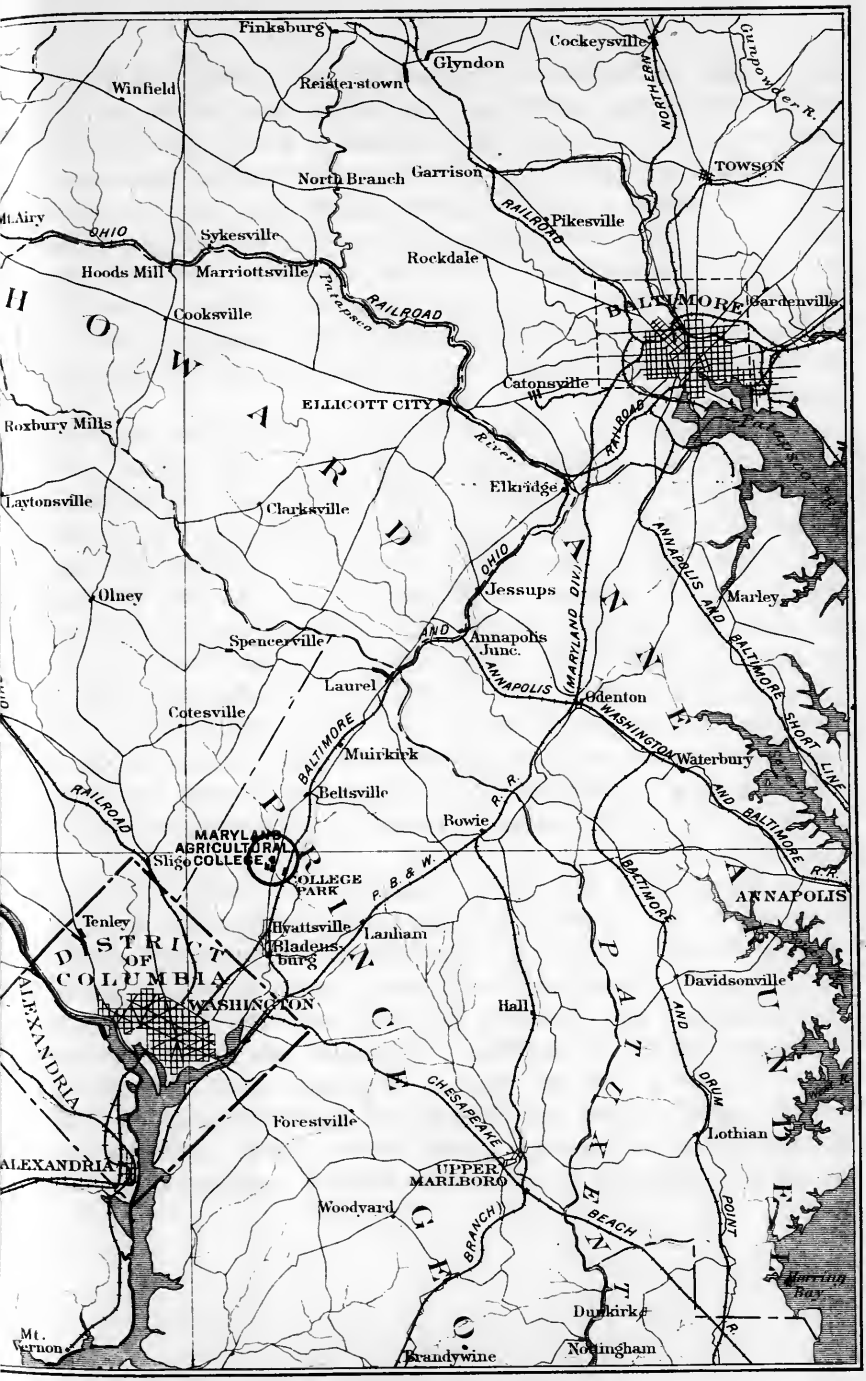
Recognizing that such an education, in order to be of practical advantage to many, must be offered at a cost within the means of all, the expenses for the year to the student have been reduced to the point where his college dues are not in excess of his ordinary daily expenses. It is to be remembered that the College is a State institution, in part supported by the State, in part by the Federal Government, through its several endowment Acts, and that it is in no sense a money-making institution, but simply a medium of disbursement by the Government to those upon whom the safety and prosperity of the State so largely depend.

While the College provides, as will hereafter be explained, several distinct courses of instruction, looking to the special training of

the student in agriculture, engineering and science, the fact is clearly kept in view that a sound foundation must be laid for each and every course. Successful specialization is only possible after the student has prepared for it by a thorough training in the essentials. All education must be narrow and one-sided which does not provide for the general culture of the student, and which does not look first to the natural and normal development of the individual. That the aim of the College is to train the student in a specialty without sacrificing his development in general culture is shown in the description of the general working plan given in the next paragraph.

It begins with the student in his first, or Freshman, year with a systematic and carefully adjusted scheme of work, differing but little in the several courses, and looking to his general development in mental strength, range of information and power of expression and thought. At the beginning of his second, or Sophomore, year the differentiation may be said to begin along those lines in which he shows most natural aptitude. This gradual specialization continues during his third, or Junior, year, until in his last, or Senior, year, his work consists chiefly of a few closely connected topics, in which he is thus able thoroughly to prepare himself. With the present equipment of the laboratories and work-shops a student is able to become so proficient in his chosen line of work that when he leaves the College a successful career is open to him if he chooses to avail himself of it.

The Agricultural College is, logically, the crowning point of the public school system of Maryland. Its aim in particular is to provide a higher education for the graduates of the county schools. To this end its curriculum is adjusted to meet the preparation of such students. It is this class of young men that the College is especially desirous of reaching. Experience has shown that our most satisfactory students come as graduates from the county schools, and no efforts will be spared to make the transition from the high school or grammar school to the College a possible one for all those actuated by an earnest desire to complete their education.



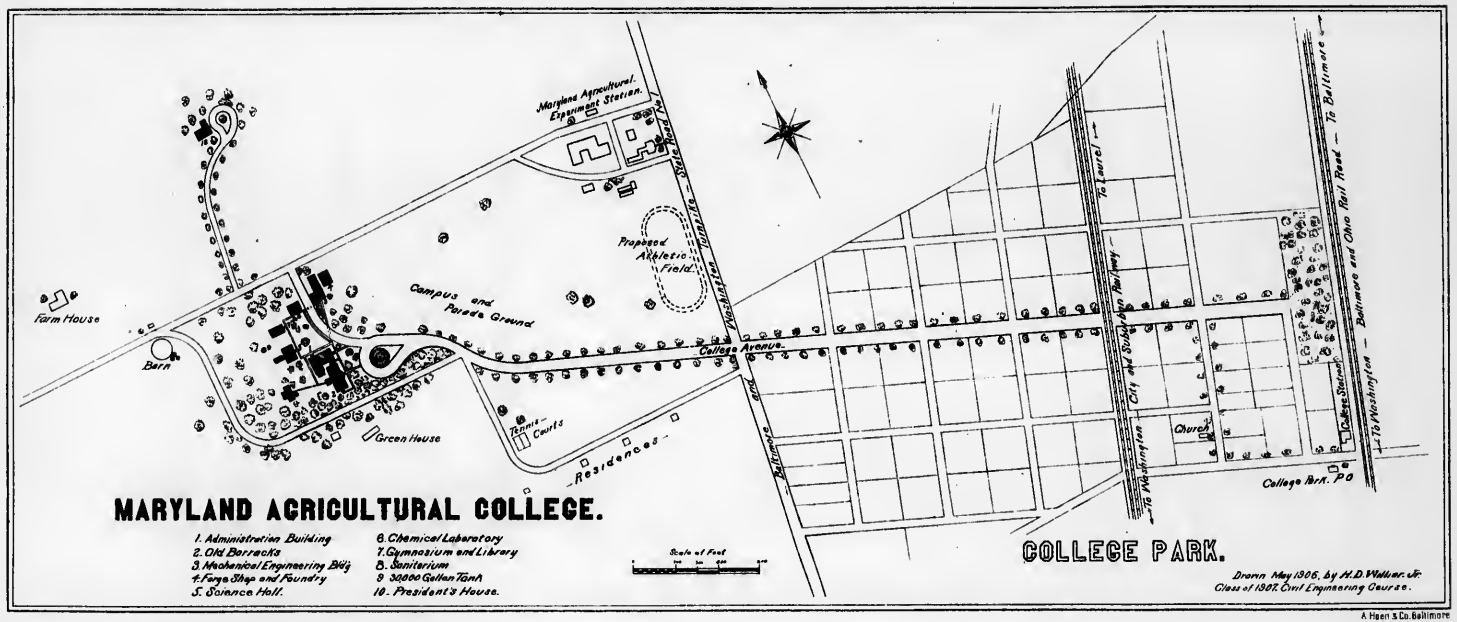
MAP SHOWING LOCATION OF

MARYLAND AGRICULTURAL COLLEGE.

A. Hoen & Co. Baltimore

8 7 6 5 4 3 2 1 0 8

8 miles = one inch



A. Hoen & Co. Baltimore

DEPARTMENTS OF THE COLLEGE.

AGRICULTURE—
  AGRONOMY.
  ANIMAL HUSBANDRY.
  FORESTRY.
BOTANY AND VEGETABLE PATHOLOGY.
CHEMISTRY.
CIVIL ENGINEERING.
ELECTRICAL ENGINEERING AND PHYSICS.
ENGLISH AND CIVICS.
ENTOMOLOGY AND ZOOLOGY.
HORTICULTURE.
LANGUAGES.
MATHEMATICS.
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ORATORY.
PHYSICAL CULTURE.
PREPARATORY.
VETERINARY.

The following pages give, under the several departments, the general character of the courses offered by each, and the main features of their equipment.

DEPARTMENT OF AGRICULTURE.

W. T. L. TALIAFERRO, PROFESSOR.
R. H. RUFFNER, ASSISTANT PROFESSOR.
*————, INSTRUCTOR.
F. W. BESLEY, LECTURER ON FORESTRY.

The Agricultural Department offers three courses:

I. A four-year course leading to the degree of Bachelor of Science.

II. A two-year course, for proficiency in which a certificate is awarded.

*To be appointed.

III. A ten-week winter course, for which credit is given toward the two-year or four-year course.

Education is transforming the farms into veritable workshops, whose products, in the aggregate, more than equal those of any other industry of the country, and which, under the influence of more general intelligence, are capable of indefinite extension. In this work there is need of the trained investigator to discover the natural laws which underlie the phenomena of plant and animal life, and also of educated farmers with skill and intelligence to receive principles and apply them in practical farming.

These courses are so arranged as to furnish a good foundation upon which the student may build a successful career as a farmer, or develop into a specialist along some line pertaining to the farming industry. The studies to be pursued are recognized as being those necessary to equip the student for the highest order of work and for the greatest usefulness.

The College farm consists of two hundred and sixty-five acres of land, which is operated by the Maryland Agricultural Experiment Station. Students of the Agricultural Course are made acquainted with the work of the Station from time to time, and because of the College and Station's close association an excellent opportunity is afforded the student to study the cultivation and growing of crops, the application of manures and fertilizers, the care of stock, the selection of seed from growing crops, the judging of the several classes of animals and all the work of the practical farmer.

DIVISION OF AGRONOMY.

The Division of Agronomy takes up the agricultural work pertaining to the field and its crops. A number of courses are offered. These treat of farm crops, their classification, adaptation to soil and climate and methods of culture; soils, their properties, and how to care for them and make them more productive and fertile by crop rotation, and by the application of manures and fertilizers; farm management, how to make the farm a source of pleasure and profit by employing economic business principles and practices; farm machinery, the kind of tools to use for preparing the land and for cultivating and harvesting the crops. A new soils laboratory has been added to this Department. In this laboratory the student has

an excellent opportunity to study the physical properties of the different kinds of soils. A separate desk and ample apparatus is provided each student to perform experiments for himself.

COURSES OFFERED.

1. Elementary Agronomy. This is an introductory course designed to acquaint the young student with the fundamental principles of good farm practice in the handling of soils and the profitable production of farm crops. At the same time it seeks to develop an interest in improved agriculture by showing its capabilities under proper management. Instruction is given by field and laboratory exercises with explanatory lectures.

Sub-Freshman Year—Third Term, 2 practical periods per week.

2. Farm Crops. In this course the production of farm crops is considered in detail as to history, uses and requirements, local adaptations, varieties, fertilization, cultivation and harvesting. A special feature is the study of crop improvement by breeding and selection. Very much of this work is of a practical nature in the laboratory or on the farm.

The texts used are Morrow and Hunt's 'Soils and Crops," Hunt's "The Cereals in America," Shamel's "Corn Judging."

Freshman Year—Third Term, 1 theoretical and 4 practical periods per week.

Sophomore and First Year—Third Term, 2 theoretical and 4 practical periods per week.

3. Soils. The study of the physical and chemical conditions of the soil in their relation to profitable agriculture. The soil is the basis of all agriculture, and a knowledge of its properties and functions cannot be too highly emphasized. The study of this important subject is conducted by means of lectures, text-books, laboratory and field work. No State in the Union possesses a greater variety of soils than Maryland, and great attention is paid to the study of soil types in their relation to profitable agriculture.

A well equipped soil laboratory and the wide variety of soils found on the College farm offer exceptional advantages in the theoretical and practical study of this important subject.

The text-book used is "The Soil," by King.

Sophomore and First Year—First and Second Term, 2 theoretical and 4 practical periods per week.

4. Farm Drainage. Practical work in open ditching and under drains is provided for the students on the Experiment Station farm. Special attention is given to the principles and practice of tile drainage.

The text-book used in this course is Waring's "Drainage for Profit and Health."

Sophomore and First Year—Third Term, 2 theoretical and 4 practical periods per week.

5. Plant Production.—This course is intended only for those students who are specializing in agronomy. It consists of field and laboratory work in the study of the handling of fall sown and fall harvested crops. Great attention is given in this course to a careful note-taking and study of the results obtained in breeding work in corn and other fall maturing crops on the Experiment Station farm.

Junior and Second Year—First Term, 3 theoretical and 4 practical periods per week.

1911-12. Senior Year—First Term, 3 theoretical and 2 practical periods per week.

6. Fertilizers. Of vital interest to the eastern and southern farmer of the present day is the fertilizing question. Between it and the profi,t and loss account is a very close connection, and frequently a lack of knowledge of the subject entails upon the farmer both the loss of money paid and of the possible increase of the crop. In this course the subject is developed logically from the needs of the plant and the efficiency of the soil to the selecting of the proper plant foods for each crop under varying conditions of soil and climate. Special attention is given to the home-mixing of fertilizers.

Sophomore and Second Year—Third Term, 2 theoretical and 4 practical periods per week.

1911-12. Senior Year—Second Term, 3 theoretical and 4 practical periods per week.

7. Farm Machinery. Lectures and practical work.

Junior Year—Third Term, 2 theoretical and 4 practical periods per week.

Second Year—First Term, 2 theoretical and 4 practical periods per week.

1911-12. Senior Year—Third Term, 2 theoretical and 4 practical periods per week.

8. Farm Management. Lectures and practical work.

Junior and Second Year—First Term, 2 theoretical periods per week.

Second Year—First Term, 2 theoretical and 4 practical periods per week.

1911-12. Senior Year—Third Term, 2 theoretical periods per week.

9. Advanced Work in Crop Production. Lectures and practical work.

Senior Year—First and Third Term, 3 theoretical and 4 practical periods per week.

Second Year—Third Term, 3 theoretical and 4 practical periods per week.

1911-12. Senior Year—Third Term, 2 theoretical and 4 practical periods per week.

10. Advanced Work in Soils. Lectures and practical work.

Senior Year—First and Third Term, 3 theoretical and 4 practical periods per week.

Second Year—Third Term, 3 theoretical and 4 practical periods per week.

1911-12. Senior Year—Third Term, 2 theoretical and 4 practical periods per week.

11. Grain Judging. This course consists of a critical comparative study of the cereals and other farm seeds from the standpoint of market grading and fitness for seed purposes. It is designed to familiarize the student so with the subject that he may not only handle his own crops to the best advantage, but may also be qualified to act as a judge at county fairs, grain shows, etc. Instruction is given by means of laboratory practice and lectures.

Second Year—Second Term, 2 theoretical and 4 practical periods per week.

12. Thesis and Research. To be arranged for with the head of the Department.

Junior Year—Third Term, 2 practical periods per week.

Senior Year—First Term, 2 practical periods per week; Third Term, 2 theoretical and 8 practical periods per week.

1911-12. Senior Year—First Term, 2 practical periods per week; Second Term, 1 theoretical and 2 practical periods per week; Third Term, 1 theoretical and 4 practical periods per week.

GEOLOGY.

COURSES OFFERED.

13. Geology. Attention is given chiefly to physical geology. The latter half of the term is devoted to the geology of Maryland, especially as affecting the character of the soils, mineral wealth and other economic conditions of the State. Instruction is given by means of text-book work, lectures and field excursions.

Shaler's "First Book in Geology" is used as a text-book. The reports of the Maryland Geological Survey are used for reference.

Freshman Year—First Term, 4 theoretical and 2 practical periods per week.

GEOGRAPHY.

COURSES OFFERED.

14. Physical Geography. A general view of phenomena and their mutual relations.

Preparatory Year—Second Term, 4 practical periods per week.

DIVISION OF ANIMAL HUSBANDRY.

The Division of Animal Husbandry stands for all lines of work which pertain to the judging, selecting, breeding, feeding, development, care and management of the various breeds and classes of

domesticated animals. Good herds of stock are being established at the Maryland Agricultural Experiment Station which are of use to the student in his studies. In addition to the supply of stock on the farm the proximity of the College to Washington and Baltimore makes it possible for the student to get excellent material for study. The Heurich dairy farm, close by, furnishes an excellent example in dairy farming. It is quite evident that there is but one way to make a young man a proficient judge of livestock, and that is by training the eye. In all of the lecture and laboratory work outlined in the courses the work is demonstrated with living specimens.

New dairy barns are erected at the Experiment Station. These are models of sanitation. A class-room for judging live stock is being planned for occupancy in the near future.

A growing library of herd-books is available to the student of pedigrees. These books give a fund of information concerning heredity, fecundity and other breed characteristics.

COURSES OFFERED.

20. Elementary Animal Husbandry. This course consists of lectures and practical demonstrations in the judging, selecting and feeding for specific purposes of certain classes of domestic animals, together with a very elementary course in dairying.

Preparatory Year—First Term, 2 practical periods per week.

21. Breeds and Scoring. This course is devoted to the detailed study of the breeds of live stock. The practical work commences with a study of the animal form by the use of the score-card. Especial attention is given to the relation of form to function. First, the productive types are firmly fixed in the student's mind; then he takes up more particularly breed characteristics. Judging occupies two double periods two afternoons per week.

Text-books used: "Types and Breeds of Farm Animals," by Plumb, and "Judging Live Stock," by Craig.

Freshman and First Year—First Term, 1 theoretical and 4 practical periods per week.

Junior Year—First Term, 1 theoretical and 6 practical periods per week.

22. PRINCIPLES OF BREEDING. This course takes up the principles of breeding, including selection, heredity, atavism, variation, fecundity, in-and-in breeding, cross breeding and a historical study of the results.

Text-book: "Stock Breeding," Miles.

Junior and Second Year—First Term, 3 theoretical periods per week.

23. LIVESTOCK MANAGEMENT. Lectures are given on the housing, feeding, care and management of dairy cattle, hogs and horses. The housing, feeding, care and management of beef cattle and sheep. The practical work in the spring term consists of applications of the work in the lectures, and takes up the drawing of barn plans and other stable conveniences.

Sophomore Year—First Term, 2 theoretical and 4 practical periods per week.

24. DAIRYING. Lectures, recitations and practical work.

Text-books: Wing's "Milk and Its Production," Russell's "Dairy Bacteriology."

Junior and Second Year—Third Term, 3 theoretical and 4 practical periods per week.

Senior Year—First Term, 1 theoretical and 8 practical periods per week.

25. STOCK JUDGING. Special attention is paid to the juding of groups of animals, similar to county and state fair work.

Senior Year—First and Third Term, 4 practical periods per week.

Second Year—Second Term, 4 practical periods per week.

26. HERDBOOK. The herdbooks of the breeds of live stock are studied with a view to becoming acquainted with the pedigrees of the leading families of live stock and the methods of recording the same. Here advanced work in animal breeding is taken up.

1911-12. Senior Year—First Term, 2 theoretical and 2 practical periods per week.

27. ANIMAL NUTRITION. This course embraces the principles and practice of animal feeding. After covering the principles of

nutrition, it takes up the composition of feeding stuffs, their combination into properly balanced rations, and the relation between the sustenance of animals and their products. Students entering this course should have completed courses in organic chemistry and comparative anatomy and physiology.

Text-books: "Feeds and Feeding," Henry; "Feeding of Animals," Jordan.

Junior Year—Second Term, 4 theoretical periods per week; Third Term, 3 theoretical and 2 practical periods per week.

Senior Year—First Term, 2 theoretical and 2 practical periods per week; Third Term, 3 theoretical and 2 practical periods per week.

Second Year—First and Second Term, 2 theoretical periods per week.

1911-12. Senior Year—First Term, 2 theoretical periods per week; Second Term, 3 theoretical periods per week; Third Term, 4 theoretical and 4 practical periods per week.

28. Profitable Stock Feeding. This course treats of the feeding of animals in a most practical manner. Special attention is given to the feeding of breeding stock and the fattening of animals for market. There is no special requirement to enter this course, as in course 27.

Text-book: "The Management and Feeding of Cattle," by Thomas Shaw.

Second Year—Second Term, 4 practical periods per week.

29. Farm Poultry. This course takes up the methods of housing, artificial incubation, artificial breeding, feeding of chicks, feeding of laying hens and diseases of poultry.

Senior and Second Year—First Term, 2 theoretical periods per week.

30. Research and Thesis. Upon lines and subjects to be arranged with the Department.

The object of this work is to develop independence and originality in the student, and also to give him a taste for personal investigation upon lines which are of particular interest to himself. The

results of these investigations are usually incorporated in a thesis.

Senior Year—First Term, 4 practical periods per week; Third Term, 3 theoretical and 4 practical periods per week.

1911-12. Senior Year—First Term, 2 practical periods per week; Second Term, 1 theoretical and 4 practical periods per week; Third Term, 3 theoretical and 6 practical periods per week.

DIVISION OF FORESTRY.

The following courses in Forestry are offered:

40. ELEMENTARY FORESTRY. A practical course embodying a general survey of the subject, and its relation to agriculture and other industries.

Sub-Freshman Year—Second Term, 2 practical periods per week.

41. FARM FORESTRY. Includes Forest Botany, Study of Tree Growth, Woodlot Management, Measurement and Valuation of Forest Crops, Nursery Practice and Tree Planting. Lectures, recitations and field work.

Text-book: "Principles of American Forestry," Green.

Senior and Second Year—Second Term, 3 theoretical and 2 practical periods per week.

42. WOOD TECHNOLOGY. A study of common commercial woods, their structure, identification, uses and commercial value. Decay of woods and methods of preservation.

Senior Year—Second Term, 1 theoretical period per week.

DEPARTMENT OF BOTANY AND VEGETABLE PATHOLOGY.

J. B. S. NORTON, PROFESSOR.
J. B. DEMAREE, INSTRUCTOR.
H. H. JEWETT, INSTRUCTOR.

The courses in Botany are intended to give such knowledge of the vegetable kingdom as is a proper element in general culture; to train the student mind in observation, comparison, generalization and other mental processes essential to true scientific methods

in any work; and to furnish a basis for practical studies directly connected with agriculture, since plants are the subjects dealt with in the field and garden. In addition to the courses in pure botany, others of special economic trend are given. These are especially for students in the Agricultural and Horticultural Courses, and take up such botanical studies of cultivated plants, plant diseases, etc., as may be useful in practical life to the professional farmer or gardener.

The equipment and means for illustration and demonstration consist of a reference library containing the principal botanical works needed by students, charts and maps, compound and dissecting microscopes, preserved specimens for illustration and a representative collection of Maryland plants; microtome and other instruments together with reagents and apparatus for histological work and physiological experiments; and a culture room, sterilizers, incubators and other facilities for the study of plant diseases.

Advanced students have an opportunity to observe the work being done in the laboratory of Vegetable Pathology and greenhouse of the State Horticultural Department, and, if competent, to assist in the same. Special attention is given to students who wish practice in the treatment of plant diseases, as it is the desire of the Department to encourage young men to engage in this work as a business.

COURSES OFFERED.

60. PLANT LIFE. The course is so arranged as to give the student an idea of the work taken up in the various branches of botany, with the view to better enabling him to decide later whether he wishes to specialize in this subject.

Preparatory Year—Third Term, 2 practical periods per week.

61. ELEMENTARY BOTANY. This course takes up a study of the names of the common plants and discussions of their ecology and economic importance.

Sub-Freshman Year—First Term, 2 practical periods per week.

62. SEEDS AND WEEDS. By examination and careful study the student becomes familiar with the ordinary field and garden seeds, and with the weed seeds which are commonly found as adulterants.

He is thus enabled to identify these at sight. A study of the common weeds is also pursued.

First Year—First Term, 4 practical periods per week.

63. General Principles. This is an elementary course in the general principles of anatomy, morphology and physiology of the higher plants. The structure and types of seed, root, stem, leaves, flowers and fruit are studied in the laboratory, with a brief consideration of the functions of the different plant organs, a more complete course in plant physiology (66) being given later.

There is also field work, with the manual on the native flora, designed to give a knowledge of the common Maryland plants and their position in the classification of the vegetable kingdom. The ecology of the plants examined in the field is also considered, and includes their relation to soils, water supply, light and other factors in their environment, cross pollination, dissemination of seeds, plant societies, etc. Each student makes a collection of at least fifty plants from some part of the State.

Bergen and Davis' "Principles of Botany" is the principal textbook used.

Reference books: Gray's "Field, Forest and Garden Botany," Britton's "Manual," Gray's "New Manual," Britton and Brown's "Illustrated Flora."

Freshman Year—Third Term, 2 theoretical and 4 practical periods per week.

64. Farm Botany. Work similar to that given in 63, with special reference to the agricultural side of botany.

First Year—Third Term, 2 theoretical and 4 practical periods per week.

65. Plant Histology. Laboratory work with the compound microscope, studying the minute structure of the tissues and organs of the various types of plants. Each student prepares a series of sections for study with the microscope, from which he makes a set of outline drawings.

Steven's "Plant Anatomy" and Chamberlain's "Methods in Plant Histology" are the principal books used.

Sophomore Year—First Term, 1 theoretical and 6 practical periods per week.

66. Plant Physiology. Lectures and experiments on the life processes of plants; absorption and transfer of water and food materials, photosynthesis, respiration, growth, movement and reproduction. Special attention is given to the relation of physiological principles to agriculture.

Text-books: Barnes' "Physiology," Osterhaut's "Experiments with Plants."

Sophomore Year—Second Term, 2 theoretical and 4 practical periods per week.

67. Comparative Morphology and Classification. A comparative study of the structure and life history of the principal types of plants from the lowest to the highest. The exercises consist principally of lectures and microscopic studies in the laboratory.

Text-book: Bergen and Davis' "Principles of Botany," Part II. The outline of classification of Engler's Syllabus is followed in general.

Junior Year—First Term, 2 theoretical and 4 practical periods per week.

68. Economic Plants. Lectures are given on the names, classification, nativity and uses of the useful and detrimental plants of the world, and field and laboratory studies are made of the common cultivated plants. This is done with a view to enabling the student of horticulture or agriculture to know the scientific names and relationship of the plants with which he comes in contact in his chosen work.

Reference works: Bailey's Gray's "Field, Forest and Garden Botany," Bailey's "Encyclopedia of Horticulture," etc.

Junior Year—Second Term, 2 theoretical and 4 practical periods per week.

69. Microscopy of Foods and Drugs. The identification of various food and drug products and their adulterants by means of the microscope.

Junior Year—Third Term, 2 theoretical and 4 practical periods per week.

70. Plant Diseases. A practical study of diseases of plants to enable the student to know them and to understand the methods of control.

Second Year—Third Term, 2 theoretical and 2 practical periods per week.

71. Vegetable Pathology. This includes microscopic and macroscopic examinations of parasitic fungi with their relations to diseases in higher plants, and studies of the nature of disease in plants and physiological diseases, together with the best known means for the prevention and control of diseases. Lectures, reference work, laboratory work and experiments in infection and treatment constitute the course.

Junior Year—Third Term, 2 theoretical and 4 practical periods per week.

1911-12. Senior Year—First and Second Term, 1 theoretical and 4 practical periods per week.

72. Research. Students electing botany as a major in the Senior Year devote a portion of their time to the completion of an original study of some botanical subject upon which they prepare the graduation thesis. The time scheduled is a minimum.

Senior Year—1 theoretical and 4 practical periods per week.

1911-12. Senior Year—First Term, 1 theoretical and 2 practical periods per week; Second Term, 2 practical periods per week; Third Term, 2 theoretical and 10 practical periods per week.

73. Elective courses for students of the Biological Course and for post-graduate students are offered in Methods in Plant Pathology, Botanical Microchemistry, Histology of Trees, Weeds and Poisonous Plants, Seed Testing, Taxonomy or advanced work in any of the undergraduate courses before mentioned.

Senior Year—4 theoretical and 6 practical periods per week.

1911-12. Senior Year—First and Second Term, 3 theoretical and 4 practical periods per week; Third Term, 4 theoretical and 8 practical periods per week.

DEPARTMENT OF CHEMISTRY.

H. B. MCDONNELL, PROFESSOR.
I. V. STONE, ASSISTANT PROFESSOR.

This Department is charged with two distinct classes of work. (1) The State fertilizer and food inspection, and (2) the instruction of students. The State work necessitates the publication of the "Quarterly" bulletin, which is usually made up of the results of the analyses of fertilizers or feeding stuffs, and is sent free of charge to all Maryland farmers who apply. Students do no part of the State work, the assistants being invariably college graduates. However, this work serves as a valuable object lesson to the advanced students.

The Chemical Laboratory Building is devoted entirely to chemistry. It is new and, not including basement, is two stories high. On the first floor are the laboratories for the State fertilizer and food control work, office, lecture room and balance room. On the second floor are three laboratories for the use of students—one for each class—a student's balance room with first-class chemical and assay balances and a supply room. The assay furnaces are in the basement. Each student is provided with a working desk, lockers, reagents and apparatus. Additional apparatus and materials are provided from the supply room, as needed.

The Department is provided with a small, but well-selected, library of standard reference books on chemistry, to which additions are made from time to time.

Instruction in chemistry is begun with the Sophomore Year, three to four periods per week being devoted to lectures and recitations, and two to four periods to practical work in the laboratory by the student, under the supervision of the instructor. In this way he comes in direct contact with the substances studied, having at hand ample facilities for learning their properties. Special attention is given to the elements and compounds of practical and economic importance, such as the air, water and soil, the elements entering into the composition of plants and animals, the useful metals, etc. The course in the Sophomore Year is intended to give the student that practical and theoretical knowledge of elementary chemistry, which is essential in the education of every man, no matter what his vocation. It

also serves as a foundation for advanced work in chemistry, if such a course is chosen.

Advanced work in chemistry begins with the Junior Year, if the Course in Chemistry is selected, and the larger part of the student's time is devoted to some branch of theoretical or practical chemistry during the rest of his course, as outlined elsewhere.

The object of the Course in Chemistry is to prepare the graduate for positions in agricultural colleges, experiment stations, the United States Department of Agriculture, or the various industries which require the services of trained chemists. The demand for our graduates for such positions is far in excess of the supply.

COURSES OFFERED.

80. FARM CHEMISTRY. This course consists of an elementary course in general chemistry, with special reference to the chemistry of plants, animals, fertilizers, etc.

Text-book: Remsen's "Elementary Chemistry."

First Year—2 theoretical and 2 practical periods per week.

81. GENERAL CHEMISTRY. Recitations and practical work in the laboratory, where the student performs the experiments under the direction of the instructors. Qualitive analysis is started in this course.

Text-book: Remsen's "Introduction to the Study of Chemistry."

Sophomore Year—First Term, 4 theoretical and 2 practical periods per week; Second and Third Term, 3 theoretical and 4 practical periods per week.

82. ELEMENTARY ORGANIC CHEMISTRY. A brief outline of the chemistry of the compounds of carbon. This course is preparatory to the more detailed study of organic chemistry, which is given later, and at the same time serves to round out the course in general chemistry for those who pursue the subject no further.

Text-book: Noyes' "Organic Chemistry."

Junior Year—First Term, 3 theoretical periods per week.

83. QUALITATIVE ANALYSIS. Lectures and laboratory work.

Text-book: Seller's "Qualitative Analysis."

Junior Year—First Term, 1 theoretical and 14 practical periods per week.

84. Qualitative Analysis. For students taking the Agricultural, Horticultural, Biological and General Courses.

Text-book: Seller's "Qualitative Analysis."

Junior Year—First Term, 1 theoretical and 8 practical periods per week.

85. Inorganic Preparations. The preparation and purification of inorganic compounds, fractional crystallization, etc.

Junior Year—First Term, 4 practical periods per week.

86. Theoretical Chemistry. A discussion of the fundamental laws and theories of modern chemistry, with their application to problems.

Text-books: Tilden's "Elements of Chemical Philosophy," and Talbot and Blanchard's "Electrolytic Dissociation Theory."

Junior Year—First Term, 2 theoretical periods per week.

87. Quantitative Analysis. Some of the simpler determinations, so selected as to illustrate the general principles of the subject, are given. Neatness and accuracy are insisted upon in the laboratory, and in the conference period the chemistry and mathematics of each determination are thoroughly discussed.

Text-book: Lincoln and Walton's "Quantitative Analysis."

Junior Year—Second Term, 1 conference and 8 practical periods per week.

88. Quantitative Analysis. For students taking the Agricultural, Biological and General Courses. A brief course illustrating some of the general principles in the quantitative study of chemistry. In the latter part of the course the agricultural students are given the option of the analysis of fertilizers, feeds, butter, milk, etc.

Text-book: Lincoln and Walton's "Quantitative Analysis."

Junior Year—Second and Third Term, 1 conference and 6 practical periods per week.

Senior Year—First Term, 4 practical periods per week.

89. Organic Chemistry. Recitations and lectures.

Text-book: Remsen's "Organic Chemistry."

Junior Year—Second and Third Term, 3 theoretical periods per week.

1911-12. Senior Year—First Term, 3 theoretical periods per week.

90. Mineralogy. This is a course in determinative mineralogy. The more important minerals are identified by their more characteristic physical and chemical properties, the blow-pipe being an important aid.

Text-book: Brush and Penfield's "Determinative Mineralogy and Blowpipe Analysis."

Junior Year—Second Term, 1 theoretical and 4 practical periods per week.

91. Organic Preparations. The preparation in the laboratory of some of the typical organic compounds, determination of boiling and melting points, lowering of freezing points by substances in solution, determination of vapor densities, and combustion methods for determination of carbon, hydrogen and nitrogen.

Reference book: Levy's "Organische Præparate," Remsen's "Organic Chemistry," and Gattermann's "Practical Methods of Organic Chemistry," translated by Schober.

Senior Year—Second Term, 16 practical periods per week.

92. Volumetric Analysis and Assaying. This course is mostly acidimetry and alkalimetry, the determination of iron, chlorine, silver, etc., by volumetric methods and the fire assay of gold, silver and lead ores.

Reference books: Sutton's 'Volumetric Analysis," and Brown's "Manual of Assaying."

Junior Year—Third Term, 2 theoretical and 12 practical periods per week.

93. Agricultural Chemistry. The chemistry of soils, fertilizers, plant life, animal life, etc.

Text-book: Ingle's "Manual of Agricultural Chemistry."

Senior Year—First Term, 5 theoretical periods per week.

1911-12. Senior Year—First Term, 3 theoretical periods per week.

94. Agricultural Chemical Analysis. This is a thorough course in the analysis of fertilizers and fertilizing materials, feeding stuffs, butter, milk, sugar, starch, etc.

Text-book: "Methods of Analysis of the Association of Official Agricultural Chemists."

Senior Year—First Term, 22 practical periods per week.

95. Industrial, Physical and Electrolytic Chemistry. In this course the student becomes familiar with the advanced theories of chemistry and with some of the methods employed by research chemists. He also receives training in the practical methods employed in various chemical industries. Visits are made to ice, fermentation and gas plants; also to fertilizer, glass, iron, steel and white lead works.

Text-books: Jones' "Physical Chemistry," Smith's "Electrolytic Chemistry," and Thorpe's "Outlines of Industrial Chemistry."

Senior Year—Second Term, 6 theoretical and 4 practical periods per week; Third Term, 5 theoretical and 6 practical periods per week.

1911--12. Senior Year—Second Term, 6 theoretical and 4 practical periods per week; Third Term, 5 theoretical periods per week.

96. Research. This will occupy nearly all the student's time in the laboratory The results will be embodied in the graduating thesis.

Senior Year—Third Term, 20 practical periods per week.

The periods mentioned for practical work in the laboratory are intended to be a minimum. The best students put in considerably more time than this, the laboratories being open to advanced students till 5 o'clock in the afternoons, and on Saturdays till noon. Energetic students are glad to avail themselves of these opportunities.

DEPARTMENT OF CIVIL ENGINEERING, ELECTRICAL ENGINEERING AND PHYSICS.

THOMAS HARDY TALIAFERRO, PROFESSOR.

MYRON CREESE, ASSOCIATE PROFESSOR.

*————————, INSTRUCTOR.

CIVIL ENGINEERING.

The subjects pertaining to civil engineering are arranged with the object of emphasizing the fundamental principles through lec-

*To be appointed.

tures and recitations in the classroom, supplemented by practical exercises in the field, drafting room and laboratory. Self-reliance being an essential factor in the success of an engineer, the student is encouraged in every way to develop this habit.

EQUIPMENT. In addition to minor engineering instruments, etc., the Department is at present equipped with three compasses, four transits and four levels.

The experimental laboratory contains a thousand pound Reihle cement testing machine and a hundred thousand pound Reihle machine for making tensile and other tests of the various kinds of materials. A description of this latter machine will be found on page 66, it having been purchased for the use of the Civil and Mechanical Engineering Departments. A description of the drafting and blue print rooms used by the Civil Engineering Department will also be found on page 67.

Plans are now being developed for hydraulic apparatus of a character suited to the needs of the Department and it will be installed in the near future.

COURSES OFFERED.

The subjects outlined, without exception, constitute a portion of the curriculum of students in the Civil Engineering Course.

100. ELEMENTARY MECHANICS. The elements of statics dealing with the composition and resolution of forces, moments, couples, simple machines and laws of friction. The elements of dynamics. dealing with velocity, acceleration, laws of motion, work, energy and applications to simple problems.

Freshman Year—Second Term, 4 theoretical periods per week.

101. ELEMENTARY SURVEYING. This course is intended to meet the needs of all students, except those in the Mechanical Engineering Course. It includes the use of the compass, transit and level, one or more methods of land surveying, the plotting and computing of areas, leveling and topographical surveying.

Texts: Robbin's "Elementary Treatise on Surveying," and notes.

Freshman Year—Third Term, 2 theoretical and 4 practical periods per week.

Senior Year—Third Term, 4 practical periods per week.

102. Surveying. This course includes the use and adjustment of engineering instruments, the methods of land surveying, the plotting and computing of areas, dividing of land, the theory of the stadia, true meridian lines, leveling, topographical surveying, railroad curves and cross sectioning.

Texts: Raymond's "Plane Surveying," and Pence & Ketchum's "Field Manual."

Sophomore Year—First Term, 4 practical periods per week; Second Term, 3 theoretical periods per week; Third Term, 1 theoretical and 4 practical periods per week.

Junior Year—First Term, 4 theoretical and 4 practical periods per week.

103. General Engineering Drawing. Isometric and cabinet projections. Perspective. Water coloring. Paper stretching. Blue printing. Ornamental lettering, round writing and title work. Floor plans, elevations and architectural details. Mapping contours and profiling. Conventional signs.

Junior Year—First and Second Term, 8 practical periods per week; Third Term, 4 practical periods per week.

104. Railway Engineering. A study is made of preliminary and location surveys, cross sectioning, calculation of quantities, etc.

Text: Searles' "Field Engineering."

Junior Year—Second and Third Term, 3 theoretical periods per week.

1911-12. Senior Year—First Term, 2 theoretical periods per week.

105. Bridge and Structural Designing. This course includes the complete design and detailing of a steel roof truss and a plate girder; the detailing from standard commercial drawing sheets of floor beams, girders and columns; and the complete design of a bridge truss of either the Warren or Pratt type. The stresses are determined by both analytical and graphic methods.

Texts: Merriman and Jacoby's "Stresses," Cooper's "Bridge Specifications," "Cambria Hand Book," Thompson's "Bridge and Structural Design," Merriman and Jacoby's "Bridge Design."

Junior Year—Second and Third Term, 2 theoretical and 4 practical periods per week.

1911-12. Senior Year—2 theoretical and 4 practical periods per week.

106. Mechanics of Materials. This course treats of the elasticity and resistance of materials of construction, and the mechanics of beams, columns and shafts.

Text: Merriman's "Mechanics of Materials."

Junior Year—Second Term, 3 theoretical periods per week; Third Term, 5 theoretical periods per week.

1911-12. Junior Year—Third Term, 5 theoretical periods per week.

Senior Year—First Term, 4 theoretical periods per week.

107. Hydraulics. The principles of hydraulics, flow through pipes, water supply, etc., are discussed in this course.

Text: Merriman's "Hydraulics."

Senior Year—First Term, 3 theoretical periods per week; Second Term, 5 theoretical periods per week.

1911-12. Senior Year—Second Term, 5 theoretical periods per week.

108. Highway Engineering. This course includes the location, construction and maintenance of roads.

Texts: Spalding's "Roads and Pavements," and the reports of the Highway Division of the Maryland Geological Survey.

Senior Year—First Term, 3 theoretical periods per week.

1911-12. Senior Year—Third Term, 4 theoretical periods per week.

109. Estimates of Cost. Lectures are given on the methods of estimating cost.

Senior Year—Second Term, 1 theoretical and 2 practical periods per week.

1911-12. Senior Year—Third Term, 1 theoretical period per week.

110. Concrete. Lectures on concrete and concrete construction.

Senior Year—Third Term, 2 theoretical periods per week.

111. Practical Problems. The necessity for practical work on the part of those desiring to enter upon engineering as a profession is obvious. To meet this condition a number of hours have been scheduled for field and laboratory work in practical problems relating to engineering. The scheduled hours constitute a minimum, the student being encouraged to give as much more of his time as is possible to problems of this character.

Junior Year—Third Term, 8 practical periods per week.

Senior Year—First Term, 12 practical periods per week; Second and Third Term, 4 practical periods per week.

1911-12. Senior Year—First Term, 6 practical periods per week; Second and Third Term, 12 practical periods per week.

112. Computing. This course is practical in its nature and includes many of the methods of computation used in the various branches of engineering.

Senior Year—Second Term, 4 practical periods per week.

113. Thesis. This involves a study of some selected problem in engineering.

Senior Year—Second Term, 4 practical periods per week; Third Term, 8 practical periods per week.

ELECTRICAL ENGINEERING.

The work of the Electrical Engineering Course is so arranged as to give the student a thorough understanding of the fundamental principles of the various branches of electrical engineering, and at the same time to teach him to apply these principles to the practical problems with which the engineer has to deal. This purpose is carried out by means of lectures and recitations in the class-room,

supplemented by practical work in the laboratories and drawing room.

EQUIPMENT. The Electrical Engineering Laboratories are located in the basement and first floor of the east wing of the new engineering building. The rooms on the first floor are used for lectures, recitations and experimental demonstrations by the instructor; and the basement contains the dynamo room and the electrical engineering testing room.

The electrical engineering testing room is fitted up with such appliances as are used to the best advantage in engineering practice. Special effort has been made to purchase only the best instruments, as the use of poorer grades influences the student unfavorably. With poor instruments he cannot be taught to do satisfactory work and he becomes careless in the handling of them.

Among other things the following apparatus has been purchased for the testing laboratory:

A Leeds and Northrup potentiometer including a volt box, standard resistance, Weston standard cell, and wall type galvanometer with telescope and scale to be used for calibrating the various ammeters and voltmeters used in the laboratory. A Queen & Co. standard photometer, for measuring the distribution of light from incandescent lamps, with all the necessary instruments and adjustments, including a Lummer-Brodhun photometer screen and carriage and a universal rotating socket for the test lamp. A number of portable direct current and alternating current voltmeters ranging from 0.0001 to 500 volts; ammeters ranging from 0.0004 to 100 amperes. A Siemen's electro-dynamometer of 60 amperes capacity; indicating and integrating wattmeters; and a commercial type condenser. The above instruments are made by the Weston Electrical Instrument Co., Queen & Co., and the General Electric Co. In addition there are D'Arsonval galvanometers, both ballistic and light movement, furnished with lamp and scale; standard resistance boxes and bridges, including a very accurate decade resistance box and a decade resistance and Wheatstone Bridge; double and single contact keys, commutating keys, condenser keys, etc.

The arc lamps, which have been purchased, include both direct current and alternating current multiple arcs and a luminous arc lamp with an inverted concentric diffuser.

A General Electric Co. turbine, direct conected to a 35 kilowatt compound generator, has been installed for testing purposes in the Electrical and Mechanical Engineering Departments. This may be used in connection with the college lighting plant when needed.

The laboratory is so wired that connection may be made readily with any part of the College lighting plant, with the turbo-generator or with any of the apparatus in the dynamo room.

The dynamo room contains the following:—A 10 kilowatt rotary converter of the latest type with speed limit and end play devices, to be used as a synchronous motor and as an alternating current generator for testing purposes. A 5 horse-power variable speed commutating pole motor. A 7.5 kilowatt, 60 cycle, 220 volt, alternating current generator designed to operate either as a polyphase alternating current generator, synchronous motor, frequency changer, constant speed induction motor, or variable speed induction motor; the following parts are supplied with the set to make possible its operation in any of the above named ways;—a stationary armature for use either as an alternating current generator or as an induction motor field; a revolving field; a squirrel cage induction motor rotor with starting compensator having self contained switches; an induction motor rotor with internal starting resistance; and an induction motor rotor with 3 phase collector rings, external resistance, and controller. A 2 kilowatt booster set, consisting of a series motor and shunt generator with armatures mounted on the same shaft. A 2 kilowatt transformer to transform from 110 to 1100 or 2200 volts. All of the above apparatus was made by the General Electric Co. In addition there are a Westinghouse 5 horse-power direct current motor and a Crocker-Wheeler 1.5 horse power fully enclosed shunt motor.

A blue Vermont marble panel is used to mount the necessary circuit breaker, rheostats, switches, etc., to control the rotary converter as well as the various circuits in the dynamo room and testing laboratory. Wire and water rheostats are arranged for load and regulation. Incandescent lamp-boards are so arranged that they may receive, at the proper voltage, from 0.04 to 100 amperes current. In addition to the special electrical engineering equipment, the College lighting plant will be used for illustrative and experimental purposes. This plant contains, together with other apparatus useful

in teaching electrical engineering, two Bullock generators of 40 kilowatts total capacity, and a switch-board equipped with a number of Weston ammeters, voltmeters and circuit breakers, and various types of rheostats.

An 8-inch Waltham bench lathe, with all the necessary attachments, has been installed in the dynamo room for the use of students in practical thesis work, and for making small articles, such as binding posts, connectors, etc., for use in the laboratories.

Such other apparatus as is necessary for carrying on the work with alternating and direct current, will be purchased as the funds permit.

COURSES OFFERED.

The subjects outlined constitute the work in electrical engineering.

120. ELEMENTARY ELECTRICITY. This subject includes: Static electricity, dealing with the phenomena of electricity in its potential form, and the conception of electric potential, quantity, capacity, etc.; kinetic electricity, including the study of the fundamental laws and units, as Ohm's Law, Joules' Law, units of current, electromotive force, resistance, etc.; theory of magnetism, with its phenomena and forces; and electro-magnetism, which is the foundation for dynamo electric machine design and construction.

Text: Nichols and Franklin's "Electricity and Magnetism."

Sophomore Year—Second and Third Term, 3 theoretical periods per week.

121. ELECTRO-MAGNETISM AND THE CONSTRUCTION OF DYNAMOS. Beginning with the Junior Year and extending throughout the course, the principles involved in the construction and operation of both direct and alternating current dynamos and motors are taught. In teaching this subject, especial care is exercised that the mathematical and graphical developments shall be concise and logical. The direct current machine is first examined, and this results in a discussion of the different forms of armature, their windings, cores, commutators, etc.; the various fields; the methods of arranging the windings for different purposes; the shape and material of

the magnetic circuits; the bearings, shafts, and bed-plates; the methods of insulation; a full description of the materials of construction; the selection of types suited to the performance of specific duties; and the proper method for installing and operating. The characteristic curves and efficiencies of the different types are also illustrated at some length.

Text: Franklin and Esty's "Dynamo Electric Machinery."

Junior Year—First and Third Term, 3 theoretical periods per week; Second Term, 4 theoretical periods per week.

122. Alternating Currents and Alternating Current Machinery. A complete study is made of the fundamental phenomena and theories dealing with the effects of alternating currents, both single-phase and poly-phase. Included in this course there are a large number of problems, both analytical and graphical, which are especially valuable for giving a clear appreciation of the effects of self-inductance, mutual-inductance, and capacity in single-phase and poly-phase alternating current circuits.

The theory, construction and practical applications of single-phase and poly-phase alternating current machinery, which includes generators, synchronous, induction and repulsion motors, rotary converters, transformers, regulators, etc., are taken in detail.

The fundamental principles of the machinery are developed in the class-room and applied concurrently in the laboratory and designing room with special reference to their practical utilization.

Texts: Franklin and Esty's "Alternating Currents," and McAllister's "Alternating Current Motors."

Senior Year—First Term, 4 theoretical periods per week; Second Term, 3 theoretical periods per week; Third Term, 5 theoretical periods per week.

1911-12. Senior Year—4 theoretical periods per week.

123. Electric Lighting and Power Plants. This work begins with the study of the different systems of distribution used in arc and incandescent lighting, and the discussion of the advantages and disadvantages of each from both financial and engineering standpoints. Attention is given to the best methods of obtaining good regulation, as upon this satisfactory lighting service depends. The proper arrangement and wiring of switch-boards and the in-

struments which they contain, as well as the latest methods of protection from lightning, are treated in detail.

The student is made familiar with the manufacture and characteristics of the incandescent arc and many new forms of electric lamps; the selection of lamps for specific commercial duties; the principles underlying correct interior and exterior illumination; the manufacture of cables for underground work; and the materials used in overhead and conduit systems of distribution.

The proper arrangement, the type and the size of boilers, engines and dynamos in a central station for lighting and power purposes, are obtained by the study of typical plants in this country and abroad. Many problems involving the calculation of the wire and material needed for the various systems of distribution are given. These problems require for their solution a knowledge of the rules of the Underwriters' Association."

Text: Crocker's "Electric Lighting."

Senior Year—First and Second Term, 2 theoretical periods per week.

124. Telephones and Telegraphs. This subject deals with the applications of electricity to telephony and telegraphy, with the details and construction of the instruments, switch-boards and line work. In this course are included a study of telephone receivers and transmitters; the multiple switchboard; common battery circuits; manual and automatic exchanges; traffic regulation; intercommunicating systems; line construction; the effects of self-inductance, capacity and other disturbing influences; location of faults; simplex, duplex, and quadruplex telegraphy; wireless telegraphy; and simultaneous telegraphy.

Text: Miller's "American Telephone Practice."

Senior Year—Second and Third Term, 2 theoretical periods per week.

1911-12. Senior Year—Second Term, 3 theoretical periods per week.

125. Electric Railway Engineering. The student is made thoroughly familiar with the following topics relating to electric railway work; the power, capacity, arrangement and method of installation of the engines and boilers; the type, method of control and disposition of the generators in the dynamo room; the proper

arrangement of the switchboards and the instruments to be used; the line work, including the various trolley and conduit constructions; the method of laying the track, with the weight and bonding of the rails; the motor equipment and car wiring; the type, power and control of the motors and the requirements for special conditions; the applications of the storage battery; the cost of installation and operation of the power plant; the management of the plant; and the modifications required for high speed electric traction.

Text: Gotshall's "Electric Railway Economics."

Senior Year—Third Term, 3 theoretical periods per week.

126. Primary and Secondary Batteries. The theories involved in the primary cell are developed and attention is directed to the various measurements and calculations pertaining to the subject. A study is made of the construction and use of the latest types of commercial cells.

Following the preliminary work on the primary cell, the study of the lead storage battery is taken up in detail. The work includes the general theory, the mechanical construction and the commercial use of the various types of cells, together with the chemical and electrical actions encountered. In connection with the storage cell a study is made of the construction and use of the different forms of the auxiliary apparatus, such as end-cell switches, boosters, etc.

Text: Lyndon's "Storage Battery Engineering."

Junior Year—Third Term, 2 theoretical periods per week.

1911-12. Senior Year—First Term, 2 theoretical periods per week.

127. Electrical Engineering Laboratory. The study of direct current instruments. The measurements of resistance, current, and electromotive force; the use of the Wheatstone Bridge and galvanometers; loop and capacity tests of cables; calibration of instruments; study of direct current machines; testing of arc lamps; photometry; the operation of machinery and determination of the characteristic curves and efficiencies of machines.

Junior Year—First and Second Term, 4 practical periods per week; Third Term, 6 practical periods per week.

128. Electrical Engineering Laroratory. The determination of inductance, impedance, condensance, etc.; measurement of power in alternating current circuits; regulation and efficiency tests of alternators and transformers; parallel operation of alternators; phase characteristics, power factor, etc. of synchronous motors; poly-phase transformation; mesh and star connections of transformers; tests of induction and synchronous motors.

Senior Year—First Term, 8 practical periods per week; Second and Third Term, 4 practical periods per week.

1911-12. Senior Year—First and Second Term, 8 practical periods per week; Third Term, 4 practical periods per week.

129. Electric Machine Design. Practical calculation of dynamos, including detail calculations of field cores, armature windings, frames, commutator, armature core and collecting devices.

Junior Year—Third Term, 6 practical periods per week.

130. Electric Machine Design. This work includes the design of reactance coils, transformers, induction motors, alternator armatures, field windings and frames, and special problems in the transmission of power.

Senior Year—Third Term, 6 practical periods per week.

131. Thesis. During the Senior Year each student is required to prepare a graduation thesis. In the preparation of the thesis the student is given the opportunity to apply his training to original research.

Senior Year—First Term, 8 practical periods per week; Second Term, 12 practical periods per week; Third Term, 10 practical periods per week.

1911-12. Senior Year—First Term, 2 practical periods per week; Second and Third Term, 6 practical periods per week.

PHYSICS.

The physical lecture room and laboratory are located in the new engineering building, in rooms excellently adapted to the purpose.

The Department is well supplied with apparatus for lecture room demonstrations and for students' individual laboratory work, and new pieces of apparatus are added to the equipment each year.

COURSES OFFERED.

140. ELEMENTARY PHYSICS. The course consists of lectures, recitations and experimental demonstrations by the instructor on the mechanics of solids, liquids and gases. The student is required to work a number of problems, and his attention is directed to the practical application of the principles studied.

Text: Carhart & Chute's "High School Physics."

Sub-Freshman Year—2 theoretical periods per week.

141. PHYSICS. The course begins with a review of mechanics, after which heat, electricity and magnetism, sound and light are taken up successively by lectures, recitations, problems and demonstrations. A knowledge of the elements of plane trigonometry is required for entrance. The laboratory work consists of a series of experiments, mainly quantitative, designed to illustrate and verify the laws and principles considered in the class-room and to develop in the student skill in manipulation and accuracy in making precise measurements.

Texts: Carhart's "University Physics," and Ames and Bliss' "Manual of Experiments in Physics."

Sophomore Year—First and Third Term, 3 theoretical and 4 practical periods per week; Second Term, 3 theoretical and 2 practical periods per week.

142. PHYSICS. Advanced work will be provided for students who have completed the preceding courses, and who wish to continue the study of physics.

DEPARTMENT OF ENGLISH AND CIVICS.

F. B. BOMBERGER, PROFESSOR.

CHARLES S. RICHARDSON, ASSISTANT PROFESSOR.

*————————, INSTRUCTOR.

This Department, as its name implies, covers the work of two distinct courses of instruction. It seeks to prepare the student by systematic training in the history, structure and use of the English

*To be Appointed.

language, for the highest development of his mental powers and for the complex duties and relations of life; and, further, to fit him for the active and intelligent exercise of his rights and duties as a man and citizen.

The course in English, of a necessity, lies at the base of all other courses of instruction. Clear and comprehensive knowledge of his mother tongue is absolutely necessary to the student in pursuing any line of college work. Nor is this all; for aside from the practical value of the English instruction as an aid to other branches of study, and as a preparation for business and profession, it is to his training in this Department, in connection with his study of history, the classics and modern languages, that the student must look for the acquiring of the general culture which has always been the distinguishing mark of the liberally educated man. The English work, which is common to all courses, consists of the study of the structure of the English language, English and American literature, theoretical and practical rhetoric, logic, psychology, critical reading and analysis, and constant exercise in expression, composition and theme writing.

The course in civics is especially designed to prepare young men for the active duties of citizenship. The first year is devoted to the study of general history, followed by the principles of civil government, constitutional history, political economy, with special reference to current, social and industrial problems, and, finally, lectures on the elements of business and international law.

ENGLISH.

COURSES OFFERED.

160. Preparatory English. Technical grammar, spelling and composition writing.

Text used: Maxwell's "Exercise in English."

Preparatory Year—5 theoretical periods per week.

161. Sub-Freshman English. Thorough review of technical grammar, practical word analysis, composition and letter writing.

Text used: Kittridge & Arnold's Series and Swinton's "Word Analysis."

Sub-Freshman and First Year—5 theoretical periods per week.

162. Farm Literature. A reading course in farm periodicals and other agricultural literature, with instruction in the taking and systematization of notes.

First and Second Year—2 practical periods per week.

This course is open as an elective to the Short Winter Course students during their stay at the College.

163. Rhetoric and Composition. Principles and practice of rhetoric and composition. Work in rhetoric consists of a study of the principles of diction, the sentence, the paragraph, the discourse, forms of prose, the nature, form and structure of poetry, and readings from leading American authors.

Work in composition consists of twelve themes, especially adapted to the requirements of the class.

Text used: Brooks and Hubbard's "Composition-Rhetoric."

Freshman Year—5 theoretical periods per week.

164. Practical English. Lectures covering special processes in composition.

Freshman Year—First and Second Term, 2 practical periods per week.

165. Composition. Practice in English composition. Special lectures. Work in composition consists of twelve themes discussing English classics studied in class, or subjects involved in the study of civics.

Sophomore and Second Year—1 theoretical period per week.

166. American Literature. A study of the most important writers, with a view to giving the student an exact knowledge of their works.

Text used: Johnson's "American Literature."

Sophomore Year—3 theoretical periods per week.

167. English Literature. General study of the history and chief writers of English literature.

Text used: Long's "English Literature."

Junior Year—First and Second Term, 3 theoretical periods per week.

1911-12. Junior Year—Second and Third Term, 3 theoretical periods per week.

168. Logic. Principles and practice of logic.

Text used; Jevon's Hill's "Logic."

Junior Year—Third Term, 3 theoretical periods per week.

1911-12. Junior Year—First Term, 3 theoretical periods per week.

169. Advanced English. An elective course.

Junior Year—4 theoretical periods per week.

170. Composition. Advanced work in English composition. Special lectures. Nine themes illustrating special processes.

Junior Year—1 theoretical period per week.

1911-12. Senior Year—1 theoretical period per week.

171. English Classics. Critical study of English classics.

Senior Year—4 theoretical periods per week.

172. Psychology. Principles of Psychology. Text-book and lectures.

Text used: Dewey's "Psychology."

Senior Year—First Term, 4 theoretical periods per week.

173. Pedagogics. A study of the history of education.

Senior Year—Second and Third Term, 4 theoretical periods per week.

174. Composition. Special themes illustrating the principles of debate, oration and short story.

Senior Year—1 theoretical period per week.

HISTORY.

COURSES OFFERED.

180. United States History.

Preparatory Year—First and Second Term, 5 theoretical periods per week.

181. Maryland History.
Preparatory Year—Third Term, 5 theoretical periods per week.

182. English History. Lectures on outlines of English history.
Sub-Freshman Year—1 practical period per week.

183. General History. Outlines of general history.
Text used: Myers' "General History."
Freshman Year—3 theoretical periods per week.

184. Advanced History. Selected topics. Elective.
Junior Year—4 theoretical periods per week.

185. Current Topics. Seminar discussion of current social, industrial, political and economic events.
1911-12. Senior Year—Third Term, 2 practical periods per week.

CIVICS.

COURSES OFFERED.

200. Civics. Civil Government in the United States.
Text used: Hindsdale's "American Government."
Junior Year—First and Second Term, 3 theoretical periods per week.

201. Political Economy. Principles of political economy and industrial development of the United States, economic science and current problems.
Text used: Seager's "Introduction to Economics."
Senior Year—4 theoretical periods per week,
1911-12. Senior Year—First Term, 3 theoretical periods per week; Second Term, 4 theoretical periods per week.

202. Business Law. Lectures on principles of law as used in every-day life and business.
Text used: Hamilton's "Practical Law."
Junior Year—Third Term, 3 theoretical periods per week.

Second Year—Second Term, 3 theoretical periods per week.

1911-12. Senior Year—Third Term, 4 theoretical periods per week.

203. Advanced Economics. Special study of economic problems. Elective.

Senior Year—4 theoretical periods per week.

204. Advanced Civics. Comparative study of modern governments. Elective.

Senior Year—4 theoretical periods per week.

DEPARTMENT OF ENTOMOLOGY AND ZOOLOGY.

T. B. SYMONS, PROFESSOR.
E. N. CORY, INSTRUCTOR.
O. G. BABCOCK, INSTRUCTOR.

Instruction is given in this Department with a view first, to giving the student the general knowledge of invertebrate and vertebrate zoology, which is necessary as a foundation science for an agricultural education; second, to fit the student in elementary and advanced entomology, both economic and systematic, so that he may pursue this specialty after graduation. A course in economic entomology and zoology is also given to provide those students who are specializing in any of the allied agricultural sciences, with the information which is essential to their ideal development.

Students wishing to take advanced work in invertebrate zoology are advised to select some subject in entomology. As the State and Experiment Station entomological work is conducted through this Department, there are special advantages for students in applied entomology.

The reference library is unusually complete, containing in addition to the standard works, a majority of the principal entomological and zoological publications. The laboratory is supplied with a large collection of insects for the use of students, and is well equip-

ped with microscopes and other apparatus necessary for practical work in entomology and zoology.

The insectary of the State Horticultural Department and the Maryland Experiment Station is joined to the laboratory, and affords facilities for special investigation to a limited number of advanced students.

COURSES OFFERED.

220. Animal Life and Elementary Entomology. A consideration of animals and insects from a nature study standpoint. These courses are designed to show the student the importance of these subjects and to develop and foster an interest in nature.

Preparatory Year—First Term, 2 practical periods per week.

Sub-Freshman Year—Third Term, 2 practical periods per week.

221. General Zoology. This course is offered to all students taking agriculture and allied sciences, and is introductory to all other work in this Department. A study is made of the general form, characteristics, habits and classification of animals from the lowest to the highest forms. It is designed to give the student that knowledge of animal life without which his education is incomplete.

Freshman Year—Second Term, 3 theoretical and 4 practical periods per week.

222. Invertebrate Zoology. In this course a thorough study will be made of the anatomy, development and classification of invertebrate animals. Special attention is given to those forms which are intimately associated with the development of allied sciences.

Sophomore Year—First and Third Term, 2 theoretical and 2 practical periods per week; Second Term, 2 theoretical and 4 practical periods per week.

223. General Entomology. This course is offered all students who have completed course 221. It consists of a study of insects, their classifi,cation, structure and relation to man. The practical work will consist of laboratory studies of the structures

of typical forms, and a study in the field of the habits of insects, particularly those which are injurious to crops.

As an aid to this study, the student is required to make a collection of the more common insects which appear in the spring.

Sophomore Year—Third Term, 2 theoretical and 4 practical periods per week.

224. Economic Entomology. This course will embrace a detailed study of the life histories of insects of economic importance and the most approved means of control. Practical work will be given in the preparation and application of insecticides and the operation of spraying machinery, of which the Department has a large assortment.

Junior Year—First Term, 2 theoretical and 4 practical periods per week.

225. Vertebrate Zoology. A thorough study of the structure, development, classification and distribution of vertebrates is made in this course. Special attention is given to birds and other vertebrates of economic importance.

Junior Year—Second and Third Term, 2 theoretical and 4 practical periods per week.

226. Systematic Entomology. This is designed for students in the Biological Course specializing in entomology. It will consist of a comparative study of insect structures, particularly those used in the arrangement of insects into natural groups.

Junior Year—Second and Third Term, 2 theoretical and 4 practical periods per week.

227. Farm Zoology. This course is offered to students in the First Year of the two-year courses. It includes a study of reptiles, birds, mammals and other animals of economic importance which commonly occur on the farm.

First Year—Third Term, 2 theoretical periods per week.

228. Insect Pests. This course is designed for students in the two-year courses and the various short courses, previous courses in entomology not being prerequisite. The course includes a study of insects from the standpoint of general farm practice.

Second Year—Third Term, 2 theoretical and 2 practical periods per week.

229. Insecticides and Spraying. Special attention is given in this course to the principles involved in the application of insecticides. A study is made of the different insecticides and spraying apparatus on the market. In the practical work an opportunity will be given to observe and operate a large number of the spraying machines and apparatus offered for sale. A special spraying laboratory has been fitted for students taking this course.

Second Year—Second Term, 1 theoretical and 2 practical periods per week.

230. Applied Entomology. This course is given students in the Horticultural Course who have completed course 224. It includes a more detailed study of some of the insects with which the trained horticulturist will have to deal, a consideration of the spraying methods used in large fruit plantings, and the control of insect pests in greenhouses and florists establishments.

Senior Year—Second Term, 2 theoretical and 4 practical periods per week.

231. Animal Parasites. This course is designed especially for students specializing in animal husbandry. The course involves a discussion of the life history and habits of the more important internal and external parasites of domestic animals. It also includes a study of the preventive treatment employed in the control of these pests.

Senior Year—Third Term, 4 theoretical and 2 practical periods per week.

1911-12. Senior Year—Second Term, 2 theoretical and 2 practical periods per week.

232. Advanced Entomology. This includes courses open to students specializing in entomology.

(a) Insect Anatomy. A study is made of methods of insect histology in connection with a study of the gross and microscopic anatomy of the body of an insect.

(b) Wing Venation. This course involves a study of the

homologies of the wing veins of the several groups of insects, showing how the natural relation of those groups may be traced by means of the veins.

Additional courses in Taxonomy, Morphology and Ecology will be offered from time to time as the individual student may require them.

Senior Year—4 theoretical and 6 practical periods per week.

1911-12. Senior Year—First and Second Term, 6 theoretical and 4 practical periods per week; Third Term, 4 theoretical and 8 practical periods per week.

233. ENTOMOLOGICAL RESEARCH. Independent research on some definite problem in entomology, the results of which are usually incorporated in the graduation thesis.

Senior Year—1 theoretical and 4 practical periods per week.

1911-12. Senior Year—First Term, 1 theoretical and 2 practical periods per week; Second Term, 2 practical periods per week; Third Term, 2 theoretical and 10 practical periods per week.

DEPARTMENT OF HORTICULTURE.

C. P. CLOSE, PROFESSOR.
HERMAN BECKENSTRATER, ASSOCIATE PROFESSOR.

The Horticultural Department offers two courses: (a) a four-year course leading to the degree of Bachelor of science; (b) a two-year course for proficiency in which a certificate is awarded.

The instruction in horticulture is specially based upon practical and economic fruit growing, truck farming and commercial floriculture. The orchards, gardens and new greenhouses of the Experiment Station offer to students a splendid opportunity to observe and study modern methods of fruit growing, vegetable growing and the forcing of greenhouse flowers and vegetables. The work in floriculture is supplemented by trips to modern establishments of successful greenhouse men in Baltimore, Washington and vicinity. Similar trips to supplement the work in landscape gardening and truck and fruit growing, are made from time to time. These

trips are a portion of the regular work and are usually made on Saturday. The expenses are generally paid by the College.

COURSES OFFERED.

240. Elementary Horticulture. This is an introductory course designed to acquaint the student with the materials and problems with which horticulture deals, and to present to the prospective student the field of horticulture as a possibility in which he may find a future career.

Preparatory Year—Third Term, 2 practical periods per week.

241. Plant Propagation. This is a detailed study of the different methods of propagating plants. Instruction is given by practical exercises in the laboratory and in the greenhouse, and includes work in seedage, cuttage, graftage and layerage. Illustrated notes are required.

Text book: "The Nursery Book," Bailey.

Freshman and First Year—Second Term, 2 practical periods per week; Third Term, 4 practical periods per week.

242. Olericulture. This course embraces the principles of vegetable growing, including the culture, economic value and botanic relations of garden vegetables. Practical work and demonstrations are given in trucking crops, hot beds and cold frames, and in individual garden plats.

Text: "Vegetable Gardening," Bailey.

Sophomore and Second Year—Third Term, 2 theoretical and 4 practical periods per week.

243. Fruit Growing. Commercial and amateur orchards and their management are discussed in this course. The location, planting, cultivation and general management, with special reference to Maryland conditions are considered. Lectures are accompanied by practical exercises.

Texts: "The Nursery Book," Bailey, and "The Principles of Fruit Growing," Bailey.

Sophomore and First Year—First and Second Term, 2 theoretical and 4 practical periods per week.

244. Floriculture. Lectures and greenhouse practice. This course is devoted to the methods of handling greenhouse crops from the commercial point of view.

Junior Year—Second Term, 2 theoretical and 4 practical periods per week.

Second Year—Second and Third Term, 2 theoretical and 4 practical periods per week.

245. Floriculture. Lectures, laboratory and plat work. The principles of growing foliage and flowering plants for decorative purposes are discussed. The exercises include demonstrations and practice in the making of hanging baskets and window boxes, and the handling af annuals, perennials and shrubbery.

Junior Year—Third Term, 2 theoretical and 4 practical periods per week.

246. Greenhouse Construction. This is a study of the materials used for greenhouses, heating systems, etc. The course includes the various types of greenhouse structures and their adaptation to different purposes. Lectures and practice.

Junior and Second Year—Second Term, 2 theoretical and 2 practical periods per week.

1911-12. Senior Year—Second Term, 2 theoretical and 2 practical periods per week.

247. Small Fruits. The course is given by lectures, demonstrations and practice. It offers an insight into the propagation, cultivation and handling of strawberries and bush fruits for home use and for market.

Text: "Bush Fruits," Card.

Junior Year—Third Term, 2 theoretical and 2 practical periods per week.

Second Year—First Term, 2 theoretical and 2 practical periods per week.

1911-12. Senior Year—Third Term, 2 theoretical and 2 practical periods per week.

248. Systematic Pomology. This course embraces the study of the evolution and relationship of the economic fruits; it includes

descriptions of fruits and the identification of the more common varieties of Maryland. Lectures and laboratory practice.

Senior and Second Year—First Term, 4 theoretical and 4 practical periods per week.

1911-12. Senior Year—First and Third Term, 2 theoretical and 2 practical periods per week.

249. Harvesting, Storing and Marketing of Fruits and Vegetables. Lectures with practice are given in gathering, packing, storing and marketing of the common fruits and vegetables. Special stress is given the market problem and the various shipping associations.

Senior Year—First Term, 4 theoretical and 2 practical periods per week.

Second Year—First Term, 2 theoretical and 2 practical periods per week.

1911-12. Senior Year—Second Term, 2 theoretical and 2 practical periods per week.

250. Plant Breeding. This is a general course in the science and art of plant breeding. The discussion of various methods of breeding and improvement is accompanied by practice in crossing in the College greenhouse and in the orchard.

Senior and Second Year—Third Term, 4 theoretical and 2 practical periods per week.

1911-12. Senior Year—Second and Third Term, 2 theoretical periods per week.

251. Landscape Gardening. Lectures, designing and practical work. The course includes a detailed study of the relation of houses and grounds; it treats of the home yard, the school grounds, public parks and roadways. It embraces a discussion of the technique of making lawns, walks and drives, planting annuals and perennials, and the planting of trees and shrubs.

Senior Year—First and Third Term, 2 theoretical and 2 practical periods per week.

Second Year—First Term, 2 theoretical and 2 practical periods per week.

252. Nut Culture. Lectures and practice. Nut growing in its economic relations is discussed. The course includes a general

view of the whole subject of nut culture; it includes the propagation, orchard management and marketing of the leading American nuts.

Senior Year—Second Term, 2 theoretical and 2 practical periods per week.

253. Citrus and Sub-tropical Fruits. This is a comprehensive course in citrus and subtropical fruits of general importance. It is a broad survey of the whole field, including propagation, cultivation, management and uses.

Senior Year—Third Term, 2 theoretical periods per week.

254. Research Work and Thesis. This work is given to the student to test and develop his powers of observation and initiation. The subject will be arranged with each student individually, and the results will be written up for a thesis, which is required of all candidates for the Bachelor of Science degree.

Senior Year—First Term, 4 practical periods per week; Second Term, 2 practical periods per week; Third Term, 12 practical periods per week.

1911-12. Senior Year—First Term, 2 practical periods per week; Third Term, 8 practical periods per week.

255. Post-Graduate Work. An opportunity for advanced work is given to candidates who have the Bachelor of Science degree.

DEPARTMENT OF LANGUAGES.

THOMAS H. SPENCE, PROFESSOR.

The Department of Languages embraces the study of three branches: Latin, German and French. All students are required to take the courses in German. Students may elect to take Latin in the Freshman Year in place of History, provided that they have completed the work outlined for the Sub-Freshman Class or its equivalent.

The course of study in Latin is given with two ends in view—first, to train the mind into accurate and close methods of reasoning; second, to give the student a more thorough and comprehensive knowledge of his own language than he could otherwise acquire. Especial attention is paid to Latin forms and terminations and to the derivation of English words from Latin roots.

So large a proportion of modern scientific literature is in German and French that a reading knowledge of these languages has become almost essential to the student pursuing advanced courses in the various spheres of scientific research. Instruction in these branches is given, therefore, to enable the student to translate intelligently the works of French and German masters in the domain of science, for, frequently there are no English versions of their works. As the student becomes more familiar with foreign scientific terms and construction, he is required to translate treatises bearing upon the special line of work which he may be pursuing. The study of French is offered as an option in the Senior Year.

LATIN.

COURSES OFFERED.

260. Grammar and Composition. The aim of this course, which is given in the Sub-Freshman Year, is to make the student conversant with Latin forms and terminations, and to enable him to read simple Latin prose.

Text-books: Shedd's "Word-value, First Latin Book," or Collar and Daniel's "First Year Latin."

Sub-Freshman Year—3 theoretical periods per week.

261. Syntax and Translation. Reading of Cæsar and Sallust with prose composition selected from the text read.

Text-books: To be selected later.

Freshman Year—3 theoretical periods per week.

262. Mythology, Translation and Literature. Reading of Virgil and Horace with lectures on mythology and Latin literature.

Text-books: To be selected later.

Sophomore Year—4 theoretical periods per week.

263. Translation, Prosody and History. Reading of Cicero, Tacitus and Juvenal, with lectures on Roman life and politics. Elective.

Text-books: To be selected later.

Senior Year—4 theoretical periods per week.

GERMAN.

COURSES OFFERED.

264. Grammar and Conversation.

Text-book: Bacon's "German Grammar."

Freshman Year—3 theoretical periods per week.

265. Translation.

Text-books selected from the following: Hauff's "Das Kalte Herz," Schiller's "Der Neffe als Onkle," Hillern's "Hocher als die Kirche," Grandgent's "Ali Baba and the Forty Thieves," Sybel's "Die Erhebung Europas," Walther's "Algemeine Meereskunde," Northrup's "Geschichte der Neuen Welt," Brant and Day's "Scientific German," Wallentin's "Grundzuge der Naturlehre," and others.

Sophomore Year—3 theoretical periods per week.

1911-12. Junior Year—3 theoretical periods per week.

266. Translation. Selected readings from various literary and scientific texts and periodicals. Elective.

Junior Year—3 theoretical periods per week.

Senior Year—4 theoretical periods per week.

1911-12. Senior Year—4 theoretical periods per week.

FRENCH.

COURSES OFFERED.

267. Grammar and Composition.

Text-book: Chardenal's "Complete French Course" (Revised).

Junior Year—First and Second Term, 4 theoretical periods per week.

1911-12. Senior Year—Second and Third Term, 4 theoretical periods per week.

268. TRANSLATION.

Text-books: Super's "French Reader," Rougemont's "La France," Fenelon's "Telemaque."

Junior Year—Third Term, 3 theoretical periods per week.

269. TRANSLATION. Selections from standard authors. Elective.

Senior Year—4 theoretical periods per week.

DEPARTMENT OF MATHEMATICS.

R. W. SILVESTER, PROFESSOR.
HENRY T. HARRISON, ASSISTANT PROFESSOR.
*————————, INSTRUCTOR.

Mathematics is the basis upon which scientific information rests. A knowledge of the study is necessary, as much from the utilitarian point of view as from the mental training its acquisition gives. Its importance as a factor in our College course takes its rise from the former consideration. All instruction in this work is with a view to the equipping of students for the more practical work soon to follow.

The class work in mathematics in the several courses consists of arithmetic, bookkeeping, algebra, geometry (plane and solid), trigonometry, analytic geometry, differential and integral calculus, and their application to mechanics, engineering, physics and surveying.

In the applied mathematics, bookkeeping is taught every student. No matter what vocation a man intends to follow, a knowledge of business forms, and methods of systematic accounts is a requisite to success. To be able to use an ordinary compass or

*To be Appointed.

transit for the purpose of laying out, dividing and calculating the area of land, or of running out lines and leveling for the purpose of drainage, is a necessary accomplishment for every intelligent farmer.

COURSES OFFERED.

280. ARITHMETIC. Review of problems involving mensuration, percentage, interest and proportion.

Preparatory Year—3 theoretical periods per week.

First Year—First Term, 3 theoretical periods per week.

281. BOOK-KEEPING. Brief course in double entry.

Sub-Freshman and First Year—Third Term, 4 practical periods per week.

282. ALGEBRA. A complete course in elementary algebra.

Text-book: Wentworth's.

Preparatory and Sub-Freshman Year—5 theoretical periods per week.

283. PLANE GEOMETRY. Books one to five, inclusive.

Text-book: Wentworth's.

Sub-Freshman Year—4 theoretical periods per week.

284. MATHEMATICS. Practical applications of the fundamental laws of elementary mathematics. Lectures will be given on the subjects considered in this course whenever they are deemed necessary.

Freshman Year—First Term, 2 practical periods per week.

285. SOLID GEOMETRY. Books six to eight, inclusive, with selected practical problems.

Text-book: Wentworth's.

Freshman Year—First Term, 4 theoretical periods per week.

286. TRIGONOMETRY. Deduction of formulas and practical applications of same in the solution of right and oblique triangles, etc.

Text-book: Wentworth's.

Freshman Year—Second Term, 5 theoretical periods per week; Third Term, 2 theoretical periods per week.

287. Analytic Geometry. Geometry of two dimensions, loci of general equations of second order, higher plane curves, etc.

Text-book: Wentworth's.

Freshman Year—Third Term, 3 theoretical periods per week.

Sophomore Year—First Term, 5 theoretical periods per week.

288. Advanced Algebra. Elementary theory of equations, partial fractions, etc.

Text-book: To be selected later.

Sophomore Year—Second Term, 3 theoretical periods per week.

289. Calculus. A discussion of the methods used in differentiation and integration, and the application of these methods in determining maxima and minima, areas, volumes, moments of inertia, etc.

Sophomore Year—Second Term, 2 theoretical periods per week; Third Term, 5 theoretical periods per week.

Junior Year—First Term, 5 theoretical periods per week.

DEPARTMENT OF MECHANICAL ENGINEERING.

HARRY GWINNER, PROFESSOR.
HOWARD LORENZO CRISP, ASSISTANT PROFESSOR.
CHARLES CLAYTON SAUTER, INSTRUCTOR.

This Department offers a Course in Mechanical Engineering leading to the degree of Bachelor of Science in Mechanical Engineering. For degree of Mechanical Engineer see page 113. It prepares young men to design and construct machinery, to superintend engineering establishments, to become superintendents of construction and to teach mechanical engineering and manual training.

The record of its graduates shows that the course is equipping such for immediate usefulness in the technical field.

Instruction is given by means of lectures and recitations, accompanied by a large amount of practice in the drafting rooms, shops and experimental laboratory.

The program of the Department is arranged to embody the two-fold belief that a thorough training is best secured by a study of the practical application of the principles involved, as well as of the principles.

EQUIPMENT. The Mechanical Engineering Laboratories are situated in the engineering building, which contains the wood-working and machine shop, drafting and lecture rooms, foundry and blacksmith shops as well as the College power plant.

The wood-working shop contains accommodations for bench work and wood turning. The power machinery in this shop is a band and circular saw, five 12-inch turning lathes, a grindstone, wood trimmer and 26-inch wood planer.

In the forge shops are sixteen power forges, two hand forges and a pressure fan and exhauster for keeping the shop free of smoke. There is a full assortment of smith's tools for each forge.

The foundry is equipped with an iron cupola, which melts 1,200 pounds of iron per hour, a brass furnace, one core-oven and the necessary flasks and tools.

The machine shop equipment consists of one 10-inch speed lathe, one 22-inch engine-lathe with compound rest, one 12-inch combined foot and power lathe, two 14-inch engine-lathes, one 24-inch drill press, one No. 4 emery tool grinder, and an assortment of vises, taps, dies, pipe-tools and measuring instruments.

The machinery of the pattern and machine shops is driven by a 9 by 14-inch automatic cut off, high speed engine, built by members of the Junior and Senior Mechanical Engineering Classes, after the standard design of the Atlas engine. An 8 by 12-inch engine drives the machinery of the blacksmith shop and foundry. It was presented to the College by the City of Baltimore, and secured through the efforts of Rear-Admiral John D. Ford, United States Navy, retired.

The experimental laboratory contains: A hundred thousand pound Reihle combined hand and power testing machine for making tensile, compression, shearing and transverse tests on va-

rious kinds of material, turbo generator set, consisting of a Curtis steam turbine and thirty-five K. W. General Electric compound wound generator for making steam and electric efficiency tests. This set is connected with the general lighting system of the College so that any time it may be tested to its capacity. It may also be used for lighting purposes if necessary. A cross ccompound condensing Corliss engine of fifty horse power, equipped with brake, indicators, relief valves, reducing motion, steam and vacuum gauges, and speed indicator, gives ample opportunity for steam consumption and brake tests. This is connected with the shops, so that any time it may be switched on and drive them. The College power plant with its vacuum heating system, three one-hundred horse power return tubular boilers, and two electric generating units offer unexcelled opportunities for experimental work.

The three drafting rooms are well equipped for practical work. Two of these are used by the Junior and Senior Classes, each student being provided with a separate desk. The third room is used jointly by the Freshman and Sophomore students and contains eleven drawing tables accommodating about sixty students.

The combined blue print and dark room with its commodious printing frames affords splendid opportunities for sun printing, which is so useful to engineering students.

Tours of Inspection.—The proximity of the College to Baltimore, Washington and Philadelphia with their great industrial enterprises offers unexcelled opportunities to engineering students to acquaint themselves practically with what is being done in modern engineering construction.

During the past session, the Senior Mechanical Engineering Class has visited the Disston Saw Works, Philadelphia; Baldwin Locomotive Works, Philadelphia; University of Pennsylvania, Philadelphia; Midvale Steel Plant, Nicetown, Pa.; and the New York Ship Building Co., Camden, N. J.; and the Junior Mechanical Engineering Class has visited the United States Navy Yard, Washington; Potomac Electric Light Company, Washington; and the Terminal Power Station, Washington. Upon these trips, an instructor accompanies the class and explains the different processes, plants and machines.

300. FREEHAND DRAWING. Straight and curved lines, leaves, plants and ornaments.

Preparatory Year—Second and Third Term, 4 practical periods per week.

301. FREEHAND DRAWING. Lettering, drawing from geometrical solids and antique fragments in outline, and light and shade.

Sub-Freshman Year—First and Second Term, 4 practical periods per week.

302. SHOPWORK. Exercise in sloyd, chip carving and bent iron work.

Preparatory Year—First Term, 4 practical periods per week.

303. FREEHAND DRAWING. Technical sketching. Pen and ink shading.

Freshman Year—First Term, 4 practical periods per week.

304. MECHANICAL DRAWING. Practice in plain lettering, use of instruments, projection and simple working drawings, the plates upon completion being enclosed in covers properly titled by the students.

Text-book: Rouillion's "Mechanical Drawing."

Freshman Year—First Term, 2 practical periods per week; Second Term, 4 practical periods per week; Third Term, 8 practical periods per week.

First Year—Second Term, 4 practical periods per week.

305. TECHNICAL INSTRUCTION. Explanation of the reading of mechanical drawings; the proper cutting angles, care and adjustment of carpenter tools; relative strength of wood joints; wood, its shrinking and warping, and how to correct and prevent. Drill in problems in arithmetic, algebra and drawing by notes and lectures.

Text-book: Goss' "Bench Work in Wood."

Freshman Year—First Term, 2 theoretical periods per week.

306. WOOD WORK. During the First Term is taught the use and care of bench tools, exercise in sawing, mortising, tenoning and laying out work for blue prints. The Second Term is devoted

to projects involving construction, decoration and wood turning. During the Third Term the principles and process of pattern making are taught, together with enough foundry work to demonstrate the uses of pattern making.

Freshman Year—First Term, 6 practical periods per week; Second Term, 4 practical periods per week; Third Term, 8 practical periods per week.

First Year—Second Term, 4 practical periods per week.

307. Descriptive Geometry. Detailing of machinery and drawing to scale from blue prints. Tracing and blue printing, and representation of flat and round surfaces by ink shading. Its relation to mechanical drawing and the solution of such problems relating to magnitudes in space as bear directly upon those which present themselves to civil, electrical and mechanical engineers.

Text-books: Faunce's "Descriptive Geometry," Rouillion's "Mechanical Drawing."

Sophomore Year—First Term, 1 theoretical and 4 practical periods per week; Second Term, 1 theoretical and 8 practical periods per week; Third Term, 2 theoretical and 2 practical periods per week.

308. Blacksmithing. The making of the fire and how to keep it in order. The operations of drawing-out, upsetting and bending of iron and steel, including the calculations of stock for bent shapes. Welding. Construction of steel tools for use in the machine shop, including tool dressing and tempering. Annealing.

Sophomore Year—First and Second Term, 4 practical periods per week.

309. Foundry Work. Moulding in iron and brass. Core making. The cupola and its management. Lectures on the selection of irons by fracture, fuels, melting and mixing of metals.

Sophomore Year—Third Term, 8 practical periods per week.

310. Elementary Machine Design. Freehand sketching of the details of machinery and making working drawings of same. Calculations and drawings of a simple type punching press. Notes and lectures.

Junior Year—First and Second Term, 2 theoretical and 4 practical periods per week; Third Term, 2 theoretical and 8 practical periods per week.

1911-12. Junior Year—First Term, 4 practical periods per week; Second Term, 2 theoretical and 4 practical periods per week; Third Term, 3 theoretical and 6 practical periods per week.

311. Machine Work. Elementary principles of vise and machine work, which includes turning, planing, drilling, screw cutting and filing. This is preceded by study of the different machines used in the machine shops.

Junior Year—First and Second Term, 6 practical periods per week; Third Term, 8 practical periods per week.

Second Year—Second Term, 4 practical periods per week.

1911-12. Junior Year—First Term, 4 practical periods per week; Second Term, 6 practical periods per week; Third Term, 8 practical periods per week.

312. Steam Engines, Boilers and Dynamos. The principles of steam and the steam engine. The slide valve and valve diagrams. The indicator and its diagram. Steam boilers, the various types and their advantages. Each student taking this course is required to spend certain hours in the power plant actually operating the engines, boilers and dynamos. The theory of dynamos is given in course 121.

Text-book: Jamieson's "Steam and Steam Engines."

Junior Year—First Term, 3 theoretical periods per week.

313. Power Plants and Thermodynamics. The theoretical study of the steam engine, gas engine and other heat motors involving the laws of thermodynamics. Lectures on equipment of power plants.

Text-book: Reeve's or Peabody's "Thermodynamics."

1911-12. Senior Year—Second Term, 3 theoretical periods per week.

314. Advanced Machine Design. Review of solid analytical geometry and integral calculus. This is followed by the actual designing of machines. As each portion is reached in process of

designing, an analytical investigation of its form and strength is made with the accompanying development of the rational and empirical formulæ involved. During 1908-09, there were designed a 3-ton winch, the frame of a 1-inch punching machine, and a structural steel plate girder for a 30-ton crane.

Text-books: Kent's "Engineer's Hand Book," "Cambria Hand Book," Church's "Mechanics of Engineering."

1911-12. Senior Year—First Term, 2 theoretical and 6 practical periods per week; Second and Third Term, 2 theoretical and 4 practical periods per week.

315. Graphic Statics. The theory and practice of the method of determining stresses in cranes, roof trusses and bridges, and stress on beams and girders due to traveling loads.

Text-book: Merriman and Jacoby's "Graphic Statics."

Junior Year—Second Term, 4 theoretical periods per week.

1911-12. Senior Year—First Term, 4 theoretical periods per week.

316. Machine Work. Advanced machine work; the laying out, assembling and construction of some piece of machinery such as an engine-lathe or dynamo.

1911-12. Senior Year—8 practical periods per week.

317. Structural Design. Analysis of stresses in structural steel buildings, traveling cranes and derricks. Design of crane girders, lattice girders and roof trusses. In addition mechanical engineering students have design of cranes and civil engineering students have design of truss bridges and retaining walls. Both analytical and graphical methods are used, that being used which is best suited to problem.

Text-books: "Cambria Steel," Ketchum's "Steel Mill Buildings," Merriman's "Bridge Design," Thompson's "Bridge and Structural Design."

Senior Year—First Term, 2 theoretical and 4 practical periods per week; Second and Third Term, 2 theoretical and 6 practical periods per week.

318. Mechanics of Engineering. The mechanics of solids.

Statics of a material point and of rigid bodies. Chains and cords. Centrifugal and centripetal forces. Work. Power. Energy. Friction. Original problems. Theoretical hydraulics.

Text-book: Church's "Mechanics of Engineering."

Senior Year—First Term, 3 theoretical periods per week; Second and Third Term, 4 theoretical periods per week.

319. THERMODYNAMICS. Theory of heat, gases and vapors. Heat engines. Air and refrigeration machinery. Principles of steam boilers, chimneys, steam piping and distribution of the same. The steam turbine.

Text-book: Peabody's "Thermodynamics."

Senior Year—3 theoretical periods per week.

320. HEATING AND VENTILATION. Principles and comparison of the different systems in common use. Elementary design of some one system. Notes and lectures.

Senior Year—First Term, 2 theoretical periods per week.

321. HYDRO-MECHANICS. Pumps and pumping machinery. Water supply engineering. Practical consideration of friction of water in pipes. Cost data of machinery. Notes and lectures.

Senior Year—Second Term, 3 theoretical periods per week.

322. EXPERIMENTAL ENGINEERING. Determining the amount of moisture in steam; the efficiency of the injector; the transit and its uses; indicator practice and the use of the planimeter; slide valve setting; the slide rule and micrometer; the analysis of boiler feed water; flue gases; lubricating oils; and the determination of the heating value of coals. The efficiency test of a Curtis steam turbine combined with that of an electric generator. The brake test and steam consumption of a cross compound Condensing Corliss engine under varying loading. The testing of iron, steel and wood to determine their commercial values. All such tests must be written upon standard forms provided for each student.

Senior Year—First and Second Term, 8 practical periods per week; Third Term, 4 practical periods per week.

1911-12. Senior Year—Third Term, 3 theoretical and 4 practical periods per week.

323. THESIS. The time devoted to the problem selected as the subject for a thesis depends upon the difficulties involved in its solution. The time here stated is a minimum.

Senior Year—Third Term, 2 theoretical and 8 practical periods per week.

1911-12. Senior Year—Second Term, 2 theoretical and 4 practical periods per week; Third Term, 4 practical periods per week.

THE MILITARY DEPARTMENT.

CAPTAIN EDGAR T. CONLEY, FIFTEENTH INFANTRY, U. S. A., PROFESSOR.

The Congress of the United States, subject to certain conditions, now appropriates annually a generous sum for each Agricultural College of the United States.

One of the conditions imposed by this grant is that the students shall receive a course of training in Military Tactics.

The instructor for this course is supplied by the War Department and is an officer of the Regular Army, detailed from his company for this duty.

The value of such military training may be considered from two view points: First, that of the United States Government, and Second, that of the individual student.

To consider the first: The Government, depending as it does upon the citizen soldier for its Volunteer Army in times of national peril, realizes that an army, recruited from raw material as regards both officers and men, would be a most hopeless proposition in these days of quick action. If the officers were trained men they would be of inestimable value in shaping these collections of citizens into efficient armies.

Government aided schools are therefore required to give such a course in Military Tactics as will create in this country a body of men, whose knowledge of the Military Art is sufficient to enable them to officer companies of infantry when called upon by the Government in the defense of the country.

From the view point of the student, the military training makes for character—"It systematically develops the body and it educates

the mind along a consistent line for the double purpose of clear thinking and effective practical work."

"It exercises the character, it disciplines the mind, it inculcates habits of subordination to lawful authority, of strict personal accountability for word and act, of truth telling, of integrity and fidelity to trust; of simplicity of life and of courage."

In addition a cadet has during his term as such, most excellent opportunities to perfect himself in the great art of commanding others.

This problem is for every cadet to solve some time during his cadet career. He finds that he must know his men, and that he must know how to appeal to those under him, if he wishes to get results without antagonizing them.

How often capable men fail, simply because they have not the knack of exercising authority so as to obtain the most satisfactory results.

Often do graduates, even those to whom the military training was distasteful, express their appreciation of the value that this training which they received at College, is to them in their several walks of life.

INSPECTION.

The War Department designates an officer of the Regular Army to make an annual inspection of the Military Department of each of the institutions of learning in the United States at which an officer is regularly detailed. There are about one hundred such institutions. This inspector rates these schools according to their military efficiency. The ten highest are designated as "Distinguished Institutions," and each of such institutions has the privilege of naming one of its graduating class for a second lieutenant's commission in the Regular Army of the United States.

The graduate so fortunate as to be selected for this honor is required to pass only a physical examination before being commissioned.

At the last annual inspection, the Maryland Agricultural College was designated a "Distinguished Institution" and therefore had the privilege of naming a graduate of the Class of 1910, who received

his commission as second lieutenant of infantry on September 24, 1910.

Only one other Agricultural College in the United States enjoys this distinction, and these two are the first, and thus far the only Agricultural Colleges which have ever attained to this distinguished class.

ORGANIZATION.

The Corps of Cadets is organized as a battalion of three companies, staff and band, the drill and administration of which conform as far as possible to that of the Regular Army.

All students, other than those physically disabled, and those at least twenty-one years of age who are not living in the dormitories, are required to drill, and upon entering are enrolled in one of the companies of the battalion.

INSTRUCTION.

The instruction in the Military Department is both practical and theoretical. The practical instruction includes the School of the Soldier, Squad, Company and Battalion in Close and Extended Order, Ceremonies of Guard-Mounting, Review and Inspection, Dress Parade, Escort to the Color, Advance and Rear Guard work, Patrolling and Scouting, Marches, Target Practice, Visual Signalling and Military Engineering.

The theoretical instruction is given to all members of the Senior Class and consists of instruction in Infantry Drill Regulations, Manual of Guard Duty, Firing Regulations for Small Arms, Field Service Regulations, First Aid to the Injured, etc., supplemented by lectures on tactical subjects, Army Regulations, Company Books and Papers, Messing, Cooking and Tactics.

EQUIPMENT.

The battalion of cadets is equipped with the United States magazine rifle, caliber 30, known as the Krag-Jorgensen, with complete equipment of side arms, cartridge box., etc. The cadet officers and

non-commissioned staff officers are equipped with the regulation West Point cadet sword and sash.

The Government also has supplied the battalion with the new regulation sub-calibre target rifle for gallery practice, and has been very liberal in the allowance of ammunition for gallery practice, of blank cartridges for field exercises, and of ball cartridges for outdoor range practice.

Students are held strictly accountable for all arms and equipment issued to them.

PROMOTIONS.

The officers and non-commissioned officers of the corps are selected with reference primarily to their fitness for the duties they will be required to perform. Their general deportment and proficiency in academic work are also given weight in making such selection.

Commissioned officers are selected from the Senior Class, sergeants from the Junior Class, and corporals from the Sophomore Class.

Senior officers are required to serve for the year, performing all duties imposed by the regulations of the College, as part of their regular course of training. Failure to perform such duties shall constitute a deficiency, causing forfeiture of both diploma and commission.

Recommendation for promotion will be based upon the standing of a cadet at the end of the year, and the possibility of his being able to work off conditions during the summer will not be considered.

DISCIPLINE.

The discipline of the institution is under the charge of the Commandant of Cadets at all times.

All rules and orders relating to the organization and government of the Corps of Cadets, the appointments, promotions, and changes of officers and all other orders affecting the Military Department are made and promulgated by the Commandant of Cadets, after having been approved by the President.

Trivial breaches of regulations, absences from classes and formations are punished by awarding demerits, confinement to quarters, walking extra punishment tours, etc.

For aggravated offences the punishment may be arrests, withdrawal of privileges, suspension or expulsion, at the discretion of the Faculty and the President.

Demerits will be awarded for every unremoved report, the number depending upon the nature and degree of the offence.

For each month during which a cadet's conduct is perfect he will be given five (5) credits, which will cancel any five (5) demerits he may have standing against him.

Any cadet who shall accumulate more than an average of one demerit per day for any calendar month, shall be deprived of all privileges to leave the College grounds for the following period of 30 days.

Any cadet who shall accumulate more than an average of one demerit per day for any term, shall be suspended for the following term.

Any cadet, who, having been once suspended, returns and again, in any one term, accumulates more than an average of one demerit per day, shall be dismissed.

Smoking by any cadet of the Sophomore, Freshman, Sub-Freshman or Preparatory Classes is strictly prohibited.

Any cadet who shall drink any spirituous or intoxicating liquor, or cause the same to be brought within cadet limits, or have the same in his possession, is subject to immediate expulsion from the College.

Every applicant for admision, before he is allowed to matriculate is required to give a special pledge to refrain from what is popularly known as "hazing." Parents should impress upon their sons that failure to live up to this pledge is a dishonor which unfits them to be students of this College. "Hazing" is punished by instant dismissal.

UNIFORM.

The uniform worn by all members of the battalion of cadets is the regulation West Point fatigue uniform, and is made of the best Charlottesville gray cloth. The uniform consists of the gray fatigue

blouse, trousers and cap, with white cross belt and white waist belt for all military formations. By special contract with one of the largest Military Equipment Houses in the United States, the uniform and equipment is furnished at a very low price. The cost of this uniform and equipment last year was:

Fatigue coat	$7.95
Fatigue trousers	5.45
Fatigue cap	1.60
White waist belt with plate	.50
White cross belt and equipment	.50
Total	$16.00

Measures for these uniforms are taken as soon as the student arrives at College, and fit is guaranteed.

Deposits for this uniform must be made with the Treasurer when the measure is taken, as no uniform will be ordered until the money has been deposited for the same. No uniform is paid for until it is approved by the Commandant of Cadets.

In summer, the field service uniform is worn, consisting of blue chambray shirt, gray trousers, puttee leggins, regulation campaign hat, black waist belt and black tie.

The price of the summer outfit is as follows:

4 chambray shirts at 45 cents	$1.80
1 campaign hat	.95
1 pair puttee leggins	.85
1 black leather belt	.20
1 black four-in-hand tie	.20
2 pairs white duck trousers at $1.25	2.50
Total for summer uniform	$6.50

Deposits for the summer uniforms must be made immediately after the first of January.

Members of the battalion must wear the prescribed uniform at all times, except when on leave of absence, and at such times as other dress is permitted.

The gray military overcoat has been adopted by the College as the regulation overcoat. It is made of the same material as the uniform and is a very warm and durable garment which will last for years. The cost of this overcoat is $19.75. The purchase of the overcoat is optional, but it is advised that it be purchased, since no overcoat other than the gray, may be worn with the gray uniform.

The full dress coat worn by a majority of the cadets of the battalion for all social functions, etc., is of the regulation West Point pattern. The dresscoat is optional. The cost is $10.90.

White gloves and collars may be purchased at the stores near the College.

CADET BAND.

The cadet band is one of the most attractive features of the Military Department. It is the means of a great deal of pleasure to the cadets, as well as an absolute necessity in furthering the interest of the military exercises.

The band has twenty-four members and is under the direction of an experienced and competent bandmaster employed by the College.

Students having musical ability, or those who wish to learn to play some instrument, will be taken into the band and receive instruction free of charge.

Instruments and music are furnished by the College. Members of the band are excused from certain military duties, but in other respects are subject to the usual military regulations.

Band rehearsals are held each day at the regular drill period, and absence from rehearsal without excuse, is equivalent to absence from any class.

The band furnishes music for all military ceremonies, such as Guard-Mounting, Dress Parade, Review and Inspection, and Butt's Drill; and for baseball and football games. It has filled a number of engagements in different parts of the State for Farmers' Institutes, picnics, etc. During the spring and summer months it gives a series of open air concerts for the entertainment of the students and visitors.

An orchestra of fifteen pieces composed mostly of members of the band, is being rapidly brought to a high degree of perfection. It furnishes music for social functions, Y. M. C. A. meetings, etc.

ROUTINE OF DUTY.

6.30 A. M.	Reveille
6.30 to 6.40 A. M.	Physical Drill
7.00 A. M.	Breakfast
7.35 A. M.	Inspection of Quarters
7.55 A. M.	Chapel
8.15 to 11.15 A. M.	Recitations
11.15 A. M. to 12.15 P. M.	Drill
12.20 P. M.	Dinner
1.00 to 4.00 P. M.	Recitations
5.40 P. M.	Recall from Athletics
6.00 P. M.	Supper
7.30 P. M.	Call to Quarters
7.30 to 10.15 P. M.	Study Hours
10.15 P. M.	Tattoo
11.00 P. M.	Taps

SPECIAL DAILY CALLS.

4.05 P. M.	Sick Call
4.15 P. M.	Guard Mounting

Saturday and Sunday calls are one hour later.

DEPARTMENT OF ORATORY.

CHARLES S. RICHARDSON, PROFESSOR.

The object of this Department is to give a thorough training in public speaking. The work is begun with easy lessons in elocution, and this is continued until the student has acquired a mastery of vocal expression, and a pleasing and forcible delivery. The student is then required to deliver both extempore and prepared speeches, covering a wide range of subjects, in this way not only securing practice in delivery, but also developing the power of logical thought.

COURSES OFFERED.

320. ELOCUTION. Such instruction and practice as will enable the students to read correctly and intelligently.

Preparatory Year—1 practical period per week.

321. ELOCUTION. Review of work in the Preparatory Year and declamations of simple selections.

Sub-Freshman Year—1 practical period per week.

322. ORATORY. Articulation, accent, modulation, inflection, force and elocutionary pause; expressive management of the body, attitude and motion. Selections of poetry and prose read and declaimed by the students. Simple lectures on orators and oratory. Methods of analysis and subjects for orations. Original orations by students, both extempore and prepared, on simple abstract subjects, and speeches before the class on the less complex public questions. Subjects for orations requiring research in different departments of knowledge. Lectures on parliamentary law.

Freshman Year—1 theoretical period per week.

323. ORATORY. A review of all the work of the Freshman Year. More advanced selections for declamations (Shakespeare, Macaulay, Webster, etc.) Lectures on ancient and modern orators, with readings and declamations from those orations. Extempore speeches by students on various subjects. Prepared original orations by students on subjects requiring careful and intelligent research, including such important public issues of the day as Tariff, Currency, Territorial Expansion, Trades Unions, Trusts, Federal Control of Public Utilities, etc. Lectures on parliamentary law.

Sophomore Year—1 theoretical period per week.

324. ORATORY. Special attention is given to the writing and delivering of orations. Elective.

Junior Year—4 theoretical periods per week.

DEPARTMENT OF PHYSICAL CULTURE.

CHARLES S. RICHARDSON, DIRECTOR.
J. P. GRASON, ASSISTANT.

The physical culture of the students is provided for by a regular course of instruction in the Gymnasium. The course is carefully planned, so as to develop gradually and scientifically the physical powers of each student. One of the most valuable features of this department is a complete anthropometry outfit, by

means of which measurements and strength tests of students are taken at the beginning and also at the end of each scholastic year. By means of these measurements and tests the exact physical condition of each individual student can be ascertained, and such special exercises given as will produce a symmetrical development of the body. While desiring to make the work in the Gymnasium of practical value to all the students, the required work only extends through the Preparatory and Sub-Freshman Years.

COURSES OFFERED.

330. GYMNASIUM WORK. Scientific body building, with light gymnastics.

Preparatory Year—3 practical periods per week.

331. HYGIENE. The care of the person in its relation to physical well-being.

Sub-Freshman Year—First Term, 2 practical periods per week.

332. GYMNASIUM WORK. Scientific body building, with heavier gymnastic work.

Sub-Freshman Year—2 practical periods per week.

PREPARATORY DEPARTMENT.

HENRY T. HARRISON, PROFESSOR IN CHARGE.
CHARLES S. RICHARDSON, ASSOCIATE.

This Department was established in 1892, and reorganized in 1909; and is designed to meet the requirements of those students who have not had the advantages of a thorough grammar and high school training, with a view to equipping them to enter the regular collegiate department.

Only such students are desired as will be able to enter the Freshman Class within two years, and who are fifteen years of age. This course is recommended especially to students who have not been to school for several years; for their progress in the regular collegiate course, by virtue of such a drawback, would be seriously

impeded. It is to be remarked that as a rule the students who have taken this course make excellent progress in their later college work. Students in this Department are subject to the same military regulations as other students.

For outline of courses see page 108.

VETERINARY DEPARTMENT.

SAMUEL S. BUCKLEY, PROFESSOR.

This Department offers instruction in the elements of the veterinary art. The course embraces the study of the external form as well as the internal structure and functions of the domesticated animals. It is intended to supplement animal husbandry instruction, and does not have for its object the training of students for veterinary practice. The preservation in health of animals is more aimed at than their restoration from disease. When studiously pursued the courses offered are of great value to the breeder, feeder or manager of live stock.

COURSES OFFERED.

The accompanying brief descriptions indicate the scope of the different courses.

340. SANITATION. Public discussion has emphasized a necessity for better practices in the production and care of animal products used for human food. The study of sanitation, therefore, is of considerable importance to students who may elect courses of study bearing upon animal production and dairying. Inasmuch as sanitary laws are applicable to the individual and the home, as well as to animals and their stables, it is desirable that all students receive some instruction in this subject. It is given, therefore, early in the course before specialization of subjects is made.

Sub-Freshman Year—Second Term, 2 practical periods per week.

341. FARM BUILDINGS. This course has for its object the development of proper ideas in the construction and arrangement of buildings for the housing of stock; the storage of food materials, animal and dairy products; and incidentally the storage of har-

ness and implements. Convenience, economy and proper sanitation are especially considered in the study of plans and location. The course is made as practical as possible by the study of plans, specifications and photographs of existing structures, and by drawing simple plans to express individual ideas.

Sophomore and First Year—Second Term, 2 theoretical and 4 practical periods per week.

342. Anatomy and Physiology. This course embraces a general consideration of the structure and functions of the animal body, with especial reference to animal production and dairying.

Junior Year—Second Term, 3 theoretical periods per week.

343. Bacteriology. The study of bacteria, including their microscopic examination, cultivation and sterilization, is made. The intimate relation which this subject bears to fertilization, dairying and plant and animal diseases makes it important in the list of agricultural subjects.

Junior Year—Second Term, 2 theoretical and 4 practical periods per week.

344. Bacteriology. This course completes course 343 begun in the Junior Year.

Senior Year—Second Term, 8 practical periods per week.

345. Bacteriology. A brief course in dairy bacteriology is offered the students attending the two-year Courses in Agriculture and Horticulture.

Second Year—Second Term, 2 practical periods per week.

346. Animal Diseases. A study is made of the diseases of the domesticated animals with emphasis upon sanitation, practical bacteriology, nursing, administration of medicine and use of common medicinal substances. The aim of this course is to enable the student to perceive the early appearance of diseases and intelligently care for them under proper veterinary supervision.

Senior Year—Second Term, 5 theoretical and 6 practical periods per week.

1911-12. Senior Year—Second Term, 4 theoretical and 6 practical periods per week.

347. Animal Diseases. A briefer course in animal diseases is offered to the students in the two-year Agricultural and Horticultural Courses.

Second Year—Second Term, 2 theoretical and 4 practical periods per week.

THE COLLEGE LIBRARY.

F. B. BOMBERGER, LIBRARIAN.

The College Library may be properly regarded as one of the departments of the institution, as its aid for purposes of reference and its influence upon the mental development of the students must always be felt throughout all courses. The present quarters of the Library, while adequate for its immediate needs, will necessarily be too limited in the course of time. The reading room is well arranged and lighted, and is in all respects comfortable and convenient.

While the Library is not large, the collection of works has been carefully chosen, and the shelves contain a fair supply of works of reference, history, biography, essays, poetry and the standard works of fiction. Several thousand volumes of bound United States Government Reports comprise an important addition to the reference works of the Library. Most of the leading magazines and a number of newspapers are subscribed for; technical periodicals and works of reference relating to specific branches are deposited in the libraries of the various departments.

The works in the Library are classified according to the modern Dewey Decimal System of classification. As rapidly as possible the sets of Government Reports that are most valuable are being completed and catalogued. At present there are on hand completed to date, or nearing completion, sets of the reports and bulletins of the United States Agricultural Department, the Geological Survey, the Fish Commission, the Smithsonian Institution, the Na-

tional Museum, the Bureau of Ethnology, the Bureau of Education, the Labor Bureau, the Census Bureau and the Bureau of American Republics. There are also nearly completed sets of the Consular Reports, Special Consular Reports, the Engineers' Reports of the United States Army, the War of the Rebellion Records and Messages and Documents, besides many other miscellaneous publications of great value. Many valuable State publications are also on file.

It is the aim of the Librarian to render all these valuable works available for easy reference by the students.

Grateful acknowledgement is made to the officers of all the departments and bureaus above noted for their publications, and especially to the United States Superintendent of Documents, through whose aid many public documents have been received. Thanks are likewise due the following for valuable additions to the Library: Johns Hopkins University, the Geological Survey, the Weather Service, the Highway Commission, and the Bureau of Statistics and Information. Especial thanks are due the county press for their liberality in sending their publications free to the Library.

COURSES OF STUDY.

In order to systematize the work of the different departments of the College, and as far as possible arrange for specialization within limits consistent with the normal development of individual students, eight distinct courses of study have been prepared, one of which the student is expected to choose upon entering the regular College work.

These courses are Agriculture (including Agronomy and Animal Husbandry), Horticulture, Biology, Chemistry, General, Civil Engineering, Electrical Engineering and Mechanical Engineering.

A continuous and progressive course of work, beginning in the Freshman Year, with a nearly uniform course for all students, and gradually separating in the three succeeding years until the class work is almost wholly specialized, has been found to be most satisfactory. A broad and liberal foundation in English, Mathematics and History is laid in the Freshman and Sophomore Years, and then the particular line of study desired is emphasized more and more until the end of the course.

In the tabular statement of the courses the periods per week are given, the numbers in parenthesis denoting practical or laboratory periods, the others theoretical or recitation periods.

AGRICULTURAL COURSES.

Four-Year Course in Agriculture.

The four-year Agricultural Course is designed to fit the student for conducting practical operations on the farm, or, should taste or circumstances so direct, to prosecute successfully advanced scientific research along the lines of agronomy or animal husbandry. With this end in view, the course has been made at once comprehensive and technical, comprehensive enough to include whatever is necessary for the complete development of the work, yet technical enough to make the student feel that he is a specialist and equipped for special work.

This Course is the result of development. While a man must specialize to attain any eminent success, yet in agricultural science it is not possible to specialize to the same degree as in some others, because it is itself made up of many sciences. Experience has clearly shown also that in agriculture the practical must keep even pace with the theoretical, and that true education trains the eye and hand as well as the intellect, and should give to the student the ability not only to acquire and originate ideas, but also to express them in words and deeds.

In the Junior Year the Course is divided into two sections, known as the Division of Agronomy and the Division of Animal Husbandry. This arrangement enables the student to specialize along whichever line accords with his interests or desires, while at the same time he is taught the fundamental facts of both. This enables him to see more clearly, and to harmonize his work to, the relations which must exist betwen these great branches of agriculture.

TWO-YEAR COURSE IN AGRICULTURE.

A large number of young men seeking to better themselves in their chosen profession of farming are calling for instruction in those courses pertaining to practical agriculture. Many of them have neither the time nor means at hand to take the full four-year Course, but while away in school they wish to gain the greatest possible amount of instruction and assistance which is particularly applicable to the farm. The farm can no longer be run in the old-time haphazard way. There is a demand for skill and the highest order of intelligence to make a success on the farm, as in any other line of human endeavor. Brains must be planted with each little seed, and also put into the feeding trough for the animal. To meet the demand for instruction along these lines, and for a better understanding of the underlying principles of successful agriculture, a short course of two years has been provided.

It embraces much of the technical work of the four-year Course, and is especially designed to lay a foundation that will secure success in practical farming, which, as it must be conducted today, is a union of many interests. To enter this Course a working knowledge

of arithmetic, including fractions, mensuration and percentage, and a common-school training in English, is required.

1911-12.
Agricultural Course.
Division of Agronomy.

Subject.	Term. I	II	III
Freshman Year.			
Mathematics 284	(2)		
Trigonometry 286		5	
Rhetoric 163	5	5	5
Oratory 322	1	1	1
History 183 or Latin 261	3	3	3
German 264	3	3	3
Farm Crops 2			1(4)
Geology 13	4(2)		
Breeds and Scoring 21	1(4)		
Plant Propagation 241		(2)	(4)
Botany 63			2(4)
Zoology 221		3(4)	
Elementary Surveying 101			2(4)
Freehand Drawing 303	(4)		
Mechanical Drawing 304		(4)	
Woodwork 306	(4)		
Junior Year.			
English Literature 167		3	3
Logic 168	3		
English Composition 170	1	1	1
Civics 200	3	3	
Business Law 202			3
German 265	3	3	3
Plant Production 5	3(4)		
Farm Machinery 7			2(4)
Farm Management 8	2		
Dairying 24			3
Anatomy & Physiology 342		3	
Bacteriology 343		2(4)	
Economic Plants 68		2(4)	
Vegetable Pathology 71			2(4)
Organic Chemistry 82	3		
Qualitative Analysis 84	1(8)		
Quantitative Analysis 88		1(6)	1(4)
Research 12			(2)

Subject.	Term. I	II	III
Sophomore Year.			
English Composition 165	1	1	1
American Literature 166	3	3	3
Oratory 323	1	1	1
German 265	3	3	3
Soils 3	2(4)	2(4)	
Farm Crops 2 / Farm Drainage 4			2(4)
Fertilizers 6			2(4)
Live Stock Management 23	2(4)		
Farm Buildings 341		2(4)	
Plant Histology 65	1(6)		
Plant Physiology 66		2(4)	
Entomology 223			2(4)
Chemistry 81	4(2)	3(4)	3(4)
Senior Year.			
English Composition 170	1	1	1
English Classics 171	4	4	4
Psychology 172	4*		
Current Topics 185			(2)
Economics 201	3	4	
Business Law 202			4
German 266	4*		
Plant Production 5	3(2)		
Fertilizers 6		3(4)	
Farm Machinery 7			2(4)
Farm Management 8			2
Crop Production 9 or Soils 10			2(4)
Farm Forestry 41		3(2)	
Plant Breeding 250		2	2
Vegetable Pathology 71	1(4)	1(4)	
Quantitative Analysis 88	(4)		
Agricultural Chemistry 93	3		
Research & Thesis 12	(2)	1(2)	1(4)

*Alternative.

Upon completion of this Course a certificate is granted, taking the place of the diploma for the four-year Course. See outline of Course on page 109.

A ten-week Course designed for those who are unable to take one of the longer courses, and including the largest amount of

1911-12.
Agricultural Course.
Division of Animal Husbandry.

Subject.	Term. I	II	III
Freshman Year.			
Mathematics 284	(2)		
Trigonometry 286		5	
Rhetoric 163	5	5	5
Oratory 322	1	1	1
History 183 or Latin 261	3	3	3
German 264	3	3	3
Farm Crops 2			1(4)
Geology 13	4(2)		
Breeds and Scoring 21	1(4)		
Plant Propagation 241		(2)	(4)
Botany 63			2(4)
Zoology 221		3(4)	
Elementary Surveying 101			2(4)
Freehand Drawing 303	(4)		
Mechanical Drawing 304		(4)	
Woodwork 306	(4)		
Junior Year.			
English Literature 167		3	3
Logic 168	3		
English Composition 170	1	1	1
Civics 200	3	3	
Business Law 202			3
German 265	3	3	3
Farm Machinery 7			2
Breeds and Scoring 21	1(6)		
Principles of Breeding 22	3		
Dairying 24			3(4)
Animal Nutrition 27		4	3(2)
Anatomy and Physiology 342		3	
Bacteriology 343		2(4)	
Zoology 225		2(4)*	2(4)*
Organic Chemistry 82	3		
Qualitative Analysis 84	1(8)		
Quantitative Analysis 88		1(6)*	1(6)*

Subject.	Term. I	II	III
Sophomore Year.			
English Composition 165	1	1	1
American Literature 166	3	3	3
Oratory 323	1	1	1
German 265	3	3	3
Soils 3	2(4)	2(4)	
Farm Crops 2 / Farm Drainage 4			2(4)
Fertilizers 6			2(4)
Live Stock Management 23	2(4)		
Farm Buildings 341		2(4)	
Plant Histology 65	1(6)		
Plant Physiology 66		2(4)	
Entomology 223			2(4)
Chemistry 81	4(2)	3(4)	3(4)
Senior Year.			
English Composition 170	1	1	1
English Classics 171	4		
Psychology 172	4*		
Current Topics 185			(2)
Economics 201	3	4	
Business Law 202			4
German 266	4*		
Farm Management 8			2
Farm Forestry 41		3(2)	
Stock Judging 25	(4)		(4)
Herd Book 26	2(2)		
Animal Nutrition 27	2	3	4(4)
Animal Diseases 346		4(6)	
Small Fruits 247			2(2)
Animal Parasites 231		2(2)	
Quantitative Analys's 88	(4)		
Agricultural Chemistry 93	3		
Research and Thesis 30	(2)	1(4)	3(6)

*Alternative.

purely practical information about farming in all its phases. This Course is invaluable to the young man desiring that information on agricultural topics so necessary to meet the sharp competition

of the present day. The College authorities have removed the nominal charge of $5.00. They are anxious to have the young men of Maryland who intend to remain on the farm embrace this opportunity. Many cannot afford a four-year course and this solves the problem for them.

Each student will be required to take not less than two hundred and fifty hours of work. Two hundred of these must be devoted to the following specified studies:

Soils, 22 hours.	Agricultural Chemistry, 20 hours.
Farm Dairying, 20 hours.	Farm Live Stock, 30 hours.
Manures, 20 hours.	Stock Feeding, 15 hours.
Plant Production, 25 hours.	Horticulture, 40 hours.

The other fifty hours will be devoted to such topics as the student may elect from the following: Veterinary Science, 40 hours; Tobacco Culture, 5 hours; Plant Physiology and Pathology, 15 hours; Economic Entomology, 20 hours; Carpentering and Blacksmithing, 45 hours; Farm Accounts, 12 hours; Road Construction and Leveling, 5 hours; Civil Government, 10 hours.

Tuition free. No expense for use of laboratories or supplies. Good board at moderate rates can be secured in the neighboring villages of Berwyn, Lakeland, Riverdale and Hyattsville—all within a short distance of the College and Experiment Station. Electric cars make frequent connections. A limited number can be accommodated at the College at $40.00 for the Course. Students will be expected to furnish their own bed clothes, pillows, towels and napkins, as well as overalls for dairy work.

Short Course students are not required to drill or wear uniforms.

HORTICULTURAL COURSE.

FOUR-YEAR COURSE IN HORTICULTURE.

The Horticultural Course is designed to give practical and scientific instruction in the great productive occupation of horticulture. Practical work in orchard, garden and greenhouse is made a prominent feature of the Course, especially in its early part, which is designed to train young men in all the details of general fruit and truck growing. In this work the orchards, nursery and

vineyard of the College and Experiment Station, which contain a great many varieties of all hardy commercial fruits, are used for practice and demonstration.

In the Freshman and Sophomore Years the work is not materially different from that of the Agricultural and Biological Courses, but in the Junior and Senior Years the subjects of the Course become grouped and specialized, and include a thesis upon some horticultural topic.

1911-12.

Horticultural Course.

Subject.	Term. I	II	III
Freshman Year.			
Mathematics 284	(2)	.....	.....
Trigonometry 286	.....	5	.....
Rhetoric 163	5	5	5
Oratory 322	1	1	1
History 183 or Latin 261	3	3	3
German 264	3	3	3
Farm Crops 2	.....	.....	1(4)
Geology 13	4(2)	.....	.....
Breeds and Scoring 21	1(4)	.....	.....
Plant Propagation 241	.....	(2)	(4)
Botany 63	.....	.....	2(4)
Zoology 221	.....	3(4)	.....
Elementary Surveying 101	.....	.....	2(4)
Freehand Drawing 303	(4)	.....	.....
Mechanical Drawing 304	.....	(4)	.....
Woodwork 306	(4)	.....	.....
Junior Year.			
English Literature 167	.....	3	3
Logic 168	3	.....	.....
English Composition 170	1	1	1
Civics 200	3	3	.....
Business Law 202	.....	.....	3
German 265	3	3	3
Farm Machinery 7	.....	.....	2(4)
Bacteriology 343	.....	2(4)	.....
Floriculture 244	.....	2(4)	.....
Floriculture 245	.....	.....	2(4)
Greenhouse Construction 246	.....	2(2)	.....
Small Fruits 247	.....	.....	2(2)
Plant Morphology 67	2(4)	.....	.....
Economic Plants 68	.....	2(4)	.....
Vegetable Pathology 71	.....	.....	2(4)
Economic Entomology 224	2(4)	.....	.....
Organic Chemistry 82	3	.....	.....
Qualitative Analysis 84	1(6)	.....	.....
.....	.....	.....	.....

Subject.	Term. I	II	III
Sophomore Year.			
English Composition 165	1	1	1
American Literature 166	3	3	3
Oratory 323	1	1	1
German 264	3	3	3
Soils 3	2(4)	2(4)	.....
Farm Crops 2 / Farm Drainage 4	.....	.....	2(4)
Olericulture 242	.....	.....	2(4)
Fruit Growing 243	2(4)	2(4)	.....
Plant Histology 65	1(6)	.....	.....
Plant Physiology 66	.....	2(4)	.....
Entomology 223	.....	.....	2(4)
Chemistry 81	4(2)	3(4)	3(4)
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
Senior Year.			
English Composition 170	1	1	1
English Classics 171	4*	.....	.....
Psychology 172	4	.....	.....
Current Topics 185	.....	.....	(2)
Economics 201	3	4	.....
Business Law 202	.....	.....	4
German 266	4*	.....	.....
Fertilizers 6	.....	3(4)	.....
Farm Machinery 7	.....	.....	2(4)
Farm Forestry 41	.....	3(2)	.....
Greenhouse Construction 246	.....	2(2)	.....
Small Fruits 247	.....	.....	2(2)
Systematic Pomology 248	2(2)	.....	2(2)
Fruit Harvesting 249	.....	2(2)	.....
Plant Breeding 250	.....	2	2
Landscape Gardening 251	2(2)	.....	2(2)
Vegetable Pathology 71	1(4)	1(4)	.....
Agricultural Chemistry 93	3	.....	.....
Research and Thesis 254	(2)	.....	(8)

*Alternative.

The advanced work in horticulture is built on the practical work before outlined, but tends to the scientific side, and the training of men for scholastic and experimental work in colleges, experiment stations and the Department of Agriculture. Excursions are made by the students to floral establishments in Baltimore and Washington to note and study the commercial aspects of floriculture. Models in landscape architecture and treatment are furnished by the parks and government grounds in and about the national capital. The State Horticultural Society, by its meetings and exhibitions, affords the horticultural students of the College excellent training work in identifying, noting and judging fruit and vegetables.

TWO-YEAR COURSE IN HORTICULTURE.

The two-year Course in Horticulture is intended for young men who wish to devote themselves to fruit and vegetable growing, or to commercial nursery or flower business, and who cannot afford the time required for a regular college course.

This Course includes practically all of the subjects given in the Department of Horticulture and those of the courses in agriculture that are of importance for the study of general horticulture. Besides these, there is also a good training in English, Botany, Entomology and Chemistry.

Upon finishing the Course the student gets a certificate which gives him credit for the work he has completed at the College.

For outline of Course see page 109.

BIOLOGICAL COURSE.

The Biological Course, while offering a general education and special training in the natural sciences, is outlined in particular for those who wish to specialize in some branch of botany or zoology. It aims to fit men for practical work in the field of plant pathology and entomology, but will also give training for special work in the pure sciences.

There are many opportunities for scientific workers in connection with the agricultural investigations of the Federal Government

and of the state experiment stations, as well as in the state inspection work, for which this Course gives training. In fact, it is now difficult to secure men trained for such work. Full opportunity is given for the student to develop his natural resources and to learn to do work on his own responsibility. A large part of his

1911-12.

Biological Course.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Mathematics 284	(2)		
Trigonometry 286		5	
Rhetoric 163	5	5	5
Oratory 322	1	1	1
History 183 or Latin 261	3	3	3
German 264	3	3	3
Farm Crops 2			1(4)
Geology 13	4(2)		
Breeds and Scoring 21	1(4)		
Plant Propagation 241		(2)	(4)
Botany 63			2(4)
Zoology 221		3(4)	
Elementary Surveying 101			2(4)
Freehand Drawing 303	(4)		
Mechanical Drawing 304		(4)	
Woodwork 306	(4)		
Junior Year.			
English Literature 167		3	3
Logic 168	3		
English Composition 170	1	1	1
Civics 200	3	3	
Business Law 202			3
German 265	3	3	3
Bacteriology 343		2(4)*	
Plant Morphology 67	2(4)		
Economic Plants 68		2(4)	
Micro Botany 69			2(4)*
Vegetable Pathology 71			2(4)
Economic Entomology 224	2(4)		
Zoology 225		2(4)	2(4)
Systematic Entomology 226		2(4)*	2(4)*
Organic Chemistry 82	3		
Qualitative Analysis 84	1(6)		
Quantitative Analysis 88		1(4)	1(4)

Subject.	Term. I	Term. II	Term. III
Sophomore Year.			
Physics 141	3(4)	3(2)	3(4)
English Composition 165	1	1	1
American Literature 166	3	3	3
Oratory 323	1	1	1
German 265	3	3	3
Plant Histology 65	1(6)		
Plant Physiology 66		2(4)	
Zoology 222	2(2)	2(4)	2(2)
Entomology 223			2(4)
Chemistry 81	4(2)	3(4)	3(4)
Senior Year.			
English Composition 170	1	1	1
English Classics 171	4*	4*	4*
Psychology 172	4		
Current Topics 185			(2)
Economics 201	3	4	
Business Law 202			4
German 266	4*	4*	4*
French 267		4*	4*
Farm Forestry 41		3(2)	
Vegetable Pathology 71	1(4)	1(4)	
Entomology 232	3	3	
Botany 73 or Entomology 232	3(4)	3(4)	4(8)
Research and Thesis 72,233	1(2)	(2)	2(10)

*Alternative.

time is spent in both practical and theoretical biological studies without neglecting the cultural studies which are a necessary foundation for every specialist. Upon completion of the four years' work the degree of Bachelor of Science is conferred.

CHEMICAL COURSE.

The Course in Chemistry is essentially the same as the other science courses until the beginning of the Junior Year, though any of the four-year courses would prepare for this, as the amount of chemistry is the same in all courses to the end of the Sophomore

1911-12.
Chemical Course.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Mathematics 284	(2)		
Solid Geometry 285	4		
Trigonometry 286		5	
Rhetoric 163	5	5	5
English 164	(2)	(2)	
Oratory 322	1	1	1
History 183 or Latin 261	3	3	3
German 264	3	3	3
Farm Crops 2			1(4)
Geology 13	4(2)		
Botany 63			2(4)
Zoology 221		3(4)	
Elementary Surveying 101			2(4)
Freehand Drawing 303	(4)		
Mechanical Drawing 304		(4)	
Woodwork 306			(4)
Junior Year.			
English Literature 167		3	3
Logic 168	3		
English Composition 170	1	1	1
Civics 200	3	3	
Business Law 202			3
German 265	3	3	3
Bacteriology 343		2(4)	
Micro Botany 69			2(4)
Organic Chemistry 82	3		
Qualitative Analysis 83	1(14)		
Inorganic Preparations 85	(4)		
Theoretical Chemistry 86	2		
Quantitative Analysis 87		1(8)	
Organic Chemistry 89		3	3
Mineralogy 90		1(4)	
Volumetric Analysis 92			2(12)
Sophomore Year.			
Physics 141	3(4)	3(2)	3(4)
English Composition 165	1	1	1
American Literature 166	3	3	3
Oratory 323	1	1	1
German 265	3	3	3
Fertilizers 6			2(4)
Plant Histology 65	1(6)		
Plant Physiology 66		2(4)	
Zoology 222	2(2)	2(4)	2(2)
Chemistry 81	4(2)	3(4)	3(4)
Senior Year.			
English Composition 170	1	1	1
Current Topics 185			(2)
Economics 201	3	4	
Business Law 202			4
German 266	4	4	4
Organic Chemistry 89	3		
Organic Preparations 91		(16)	
Agricultural Chemistry 93	3		
Agricultural Analysis 94	(22)		
Chemistry 95		6(4)	5
Research and Thesis 96			(20)

Year, and the demands on the agricultural or technical chemist are now so varied that a foundation with more of the essentials of the agricultural or the engineering courses is often desirable.

Beginning with the Junior Year the major part of the student's time is devoted to chemistry, the practical work in the laboratory

occupying approximately half of his time. The Course is essentially a course in agricultural chemistry, fitting the graduate for

1911-12.
General Course.

Subject.	Term. I	II	III
Freshman Year.			
Mathematics 284	(2)		
Solid Geometry 285	4		
Trigonometry 286		5	
Analytics 287			3
Rhetoric 163	5	5	5
English 164	(2)	(2)	
Oratory 322	1	1	1
History 183 or Latin 261	3	3	3
German 264	3	3	3
Geology 13	4(2)		
Botany 63			2(4)
Zoology 221		3(4)	
Elementary Surveying 101			2(4)
Freehand Drawing 303	(4)		
Mechanical Drawing 304		(4)	
Woodwork 306			(4)
Junior Year.			
English Literature 167		3	3
Logic 168	3		
English 169	4*	4*	4*
English Composition 170	1	1	1
History 184	4*	4*	4*
Oratory 324	4*	4*	4*
Civics 200	3	3	
Business Law 202			3
German 265	3	3	3
French 267	4	4	3
Bacteriology 343		2(4)**	
Plant Morphology 67	2(4)*		
Micro Botany 69			2(4)**
Economic Entomology. 224	2(4)*		
Zoology 225		2(4)**	2(4)**
Organic Chemistry 82	3		
Qualitative Analysis 84	1(6)		
Inorganic Preparations 85	(4)		
Theoretical Chemistry 86	2	*	
Quantitative Analysis 88		1(4)***	1(6)***
Organic Chemistry 89		3***	
Mineralogy 90		1(4)***	
Volumetric Analysis 92			2(4)***

Subject.	Term. I	II	III
Sophomore Year.			
Physics 141	3(4)	3(2)	3(4)
English Composition 165	1	1	1
American Literature 166	3	3	3
Oratory 323	1	1	1
Latin 262	4	4	4
German 265	3	3	3
Zoology 222	2(2)	2(4)	2(2)
Chemistry 81	4(2)	3(4)	3(4)
Senior Year.			

The course for the Senior Year will be outlined as required.

*,**,*** Alternatives,

positions in agricultural colleges, experiment stations and the United States Department of Agriculture.

GENERAL COURSE.

The General Course is offered to those young men who have not chosen as their vocation in life any of the technical professions, but who are seeking for such general culture as will fit them to become after graduation, useful members of society. Young men desiring to study law, or medicine, or the liberal arts, or to become teachers, will find in the curriculum of this Course a highly satisfactory preparation for such work. While emphasis has been placed upon the cultural subjects, such as English, Language, Literature, History, Mathematics, etc., the natural sciences occupy a prominent place in the Course and the range of electives beginning in the Junior Year will enable each to choose for himself, under certain necessary regulations, such a group of studies as will be best adapted to his own peculiar requirements.

CIVIL ENGINEERING COURSE.

This Course offers a young man an opportunity to obtain training in civil engineering which will enable him to engage in practical engineering work in the field or in the drafting room with the assurance that he has the necessary preparation to profit by the experience thus afforded; or which will entitle him to advanced standing, if he desires to pursue a more extended course at a technical school of a higher grade. The curriculum, which is outlined for 1911-12 on page 98, includes not only studies having culture value, but the sciences which form the basis of engineering. Students who have found themselves deficient in ability to learn mathematics are not advised to enter an engineering course. Upon the satisfactory completion of this Course the degree of Bachelor of Science in Civil Engineering, is conferred.

A thesis dealing with some problem in engineering will be required of all applicants for the degree of Bachelor of Science in Civil Engineering.

All engineering students in the Junior and Senior Classes are required to spend a portion of their time in the reading of the current engineering magazines.

ELECTRICAL ENGINEERING COURSE.

This Course was introduced because of the great demand for young men who are not only well trained in the practical construction and operation of electrical machines, but who have a thorough knowledge of the principles and laws controlling the phenomena and forces with which they have to deal.

1911-12.

Civil Engineering Course.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Mathematics 284	(2)		
Solid Geometry 285	4		
Trigonometry 286		5	2
Analytics 287			3
Rhetoric 163	5	5	5
Oratory 322	1	1	1
History 183 or Latin 261	3	3	3
German 264	3	3	3
Geology 15	4(2)		
Elementary Mechanics 100		4	
Elementary Surveying 101			2(4)
Freehand Drawing 303	(4)		
Mechanical Drawing 304	(2)	(4)	(8)
Woodwork 306		(4)	
Junior Year.			
Calculus 289	5		
English Literature 167		3	
Logic 168	3		
English Composition 170	1	1	1
Civics 200	3	3	
Business Law 202			3
German 265	3	3	3
Surveying 102	4(4)		
Drawing 103	(8)	(8)	(4)
Railway Engineering 104		3	3
Structural Design 105		2(4)	2(4)
Mechanics of Materials 106			5
Practical Problems 111			(8)
Graphic Statics 315		4	

Subject.	Term. I	Term. II	Term. III
Sophomore Year.			
Analytics 287	5		
Algebra 288		3	
Calculus 289		2	5
Physics 141	3(4)	3(2)	3(4)
English Composition 165	1	1	1
Oratory 323	1		
German 265	3	3	3
Chemistry 81	4(2)	3(4)	3(4)
Surveying 102	(4)	3	1(4)
Descriptive Geometry 307	1(4)	1(6)	2(2)
Senior Year.			
English Composition 170	1	1	1
Current Topics 185			(2)
Economics 201	3	4	
Business Law 202			4
German 266	4	4*	4*
French 267		4*	4*
Wood Technology 42		1	
Railway Engineering 104	2		
Structural Design 105	2(4)	2(4)	2(4)
Mechanics of Materials 106	4		
Hydraulics 107		5	
Highway Engineering 108			4
Estimates of Cost 109			1
Practical Problems 111	(6)	(12)	(12)
Graphic Statics 315	4		

*Alternative.

The general plan of the Course is to make the student thoroughly acquainted with the scientific laws which are the basis of the profession, and at the same time to train him to adapt the laws to practice, to use his own judgment, and to apply honest and accurate methods in all his work.

The curriculum, as outlined, includes those studies which provide a broad general culture, as well as a good foundation for the engineering work which follows. From the beginning of the Second Term of the Sophomore Year the electrical training extends continuously throughout the Course.

1911-12.

Electrical Engineering Course.

Subject.	Term. I	II	III
Freshman Year.			
Mathematics 284	(2)		
Solid Geometry 285	4		
Trigonometry 286		5	2
Analytics 287			3
Rhetoric 163	5	5	5
Oratory 322	1	1	1
History 183 or Latin 261	3	3	3
German 264	3	3	3
Elementary Mechanics 100		4	
Elementary Surveying 101			2(4)
Freehand Drawing 303	(4)		
Mechanical Drawing 304	(2)	(4)	(8)
Technical Instruction 305	2		
Woodwork 306	(6)	(4)	
Junior Year.			
Calculus 289	5		
English Literature 167		3	
Logic 168	3		
English Composition 170	1	1	1
Civics 200	3	3	
Business Law 202			3
German 265	3	3	3
Mechanics of Materials 106			5
Dynamos 121	3	4	3
Batteries 126			2
Electrical Laboratory 127	(4)	(4)	(6)
Electrical Design 129			(6)
Machine Design 310		(4)	
Machine Work 311	(4)	(6)	(4)
Steam Engines 312	3		
Graphic Statics 315		4	

Subject.	Term. I	II	III
Sophomore Year.			
Analytics 287	5		
Algebra 288		3	
Calculus 289		2	5
Physics 141	3(4)	3(2)	3(4)
English Composition 165	1	1	1
Oratory 323	1		
German 265	3	3	3
Chemistry 81	4(2)	3(4)	3(4)
Electricity 120		3	3
Descriptive Geometry 307	1(4)	1(6)	2(2)
Shopwork 308	(4)		
Senior Year.			
English Composition 170	1	1	1
Current Topics 185			(2)
Economics 201	3	4	
Business Law 202			4
German 266	4	4*	4*
French 267		4*	4*
Mechanics of Materials 106	4		
Alterniators 122	4	4	4
Electrc Lights 123	2	2	
Telephones and Telegraphs 124		3	
Electric Railways 125			3
Batteries 126	2		
Alternating Current Laboratory 128	(8)	(8)	(4)
Alternator Design 130			(6)
Thesis 131	(2)	(6)	(6)

*Alternative.

MECHANICAL ENGINEERING COURSE.

The work of the several years of this Course differs from the preceding courses, mainly in the omission of those subjects of a biological and agricultural character and inclusion of mathematics and shopwork. The shopwork supplements the mathematics,

especiallly in the last two years, when problems in machine design are worked out, and so far as time allows, the parts designed are actually constructed. The practical work of this Course is most thorough. The student is familiarized from the first with the use of tools and implements used in wood and iron work. He is given daily practice in the shops and is encouraged to develop whatever inventive talent he may have. Results have shown that students completing this Course have no difficulty in securing employment immediately upon graduation in the field of mechanics or mechanical engineering.

1911-12.
Mechanical Engineering Course.

Subject.	Term. I	II	III
Freshman Year.			
Mathematics 284	(2)		
Solid Geometry 285	4		
Trigonometry 286		5	2
Analytics 287			3
Rhetoric 163	5	5	5
Oratory 322	1	1	1
History 183 or Latin 261	3	3	3
German 264	3	3	3
Elementary Mechanics 100		4	
Freehand Drawing 303	(4)		
Mechanical Drawing 304	(2)	(4)	(8)
Technical Instruction 305	2		
Woodwork 306	(6)	(4)	(8)
Junior Year.			
Calculus 289	5		
English Literature 167		3	
Logic 168	3		
English Composition 170	1	1	1
Civics 200	3	3	
Business Law 202			3
German 265	3	3	3
Mechanics of Materials 106			5
Dynamos 121	3	4	3
Machine Design 310	(4)	2(4)	3(6)
Machine Work 311	(4)	(6)	(8)
Steam Engines 312	3		
Graphics Statics 315		4	

Subject.	Term. I	II	III
Sophomore Year.			
Analytics 287	5		
Algebra 288		3	
Calculus 289		2	5
Physics 141	3(4)	3(2)	3(4)
English Composition 165	1	1	1
Oratory 323	1		
German 265	3	3	3
Chemistry 81	4(2)	3(4)	3(4)
Descriptive Geometry 307	1(4)	1(8)	2
Shopwork 308	(4)	(4)	
Foundry 309			(8)
Senior Year.			
English Composition 170	1	1	1
Current Topics 185			(2)
Economics 201	3	4	
Business Law 202			4
German 266	4	4*	4*
French 267		4*	4*
Wood Technology 42		1	
Mechanics of Materials 106	4		
Power Plants 313		3	
Machine Design 314	2(6)	2(4)	2(4)
Graphic Statics 315	4		
Machine Work 316	(8)	(8)	(8)
Experimental Engineering 322			3(4)
Thesis 323		2(4	(4)

*Alternative.

SNYOPSIS OF COURSES.

The figures represent the number of periods per week, those in parenthesis indicating practical or laboratory periods; the others, theoretical or recitation periods.

Four Year Courses.

In 1911-12, this table does not indicate the courses for the Junior and Senior Year.

Term and Subject.	Agriculture		Horticulture	Biology	Chemistry	General	Engineering		
	Agronomy	Animal Husbandry					Civil	Electrical	Mechanical
Freshman Year.									
I									
Mathematics 284	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Solid Geometry 285	.....	.....	.....	.....	4	4	4	4	4
Rhetoric 163	5	5	5	5	5	5	5	5	5
English 164	.....	.....	.....	.....	(2)	(2)	.....	.....	.....
Oratory 322	1	1	1	1	1	1	1	1	1
History 183 or Latin 261	3	3	3	3	3	3	3	3	3
German 264	3	3	3	3	3	3	3	3	3
Geology 13	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	.....	.....
Breeds 21	1(4)	1(4)	1(4)	1(4)	.....	.....	.....	.....	.....
Freehand Drawing 303	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)
Mech. Drawing 304	.....	.....	.....	.....	.....	.....	(2)	(2)	(2)
Tech. Instruction 305	.....	.....	.....	.....	.....	.....	.....	2	2
Woodwork 306	(4)	(4)	(4)	(4)	.....	.....	.....	(6)	(6)
II									
Trigonometry 286	5	5	5	5	5	5	5	5	5
Rhetoric 163	5	5	5	5	5	5	5	5	5
English 164	.....	.....	.....	.....	(2)	(2)	.....	.....	.....
Oratory 322	1	1	1	1	1	1	1	1	1
History 183 or Latin 261	3	3	3	3	3	3	3	3	3
German 264	3	3	3	3	3	3	3	3	3
Plant Prop. 241	(2)	(2)	(2)	(2)	.....	.....	.....	.....	.....
Zoology 221	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	.....	.....	.....
Elem. Mech. 100	.....	.....	.....	.....	.....	.....	4	4	4
Mech. Drawing 304	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)
Woodwork 306	.....	.....	.....	.....	.....	.....	(4)	(4)	(4)
III									
Trigonometry 286	.....	.....	.....	.....	.....	.....	2	2	2
Analytics 287	.....	.....	.....	.....	.....	3	3	3	3
Rhetoric 163	5	5	5	5	5	5	5	5	5
Oratory 322	1	1	1	1	1	1	1	1	1
History 183 or Latin 261	3	3	3	3	3	3	3	3	3

Four-Year Courses—Continued.

Term and Subject.	Agriculture		Horticulture	Biology	Chemistry	General	Engineering		
	Agronomy	Animal Husbandry					Civil	Electrical	Mechanical
Freshman Year—Continued.									
III—Continued.									
German 264	3	3	3	3	3	3	3	3	3
Farm Crops 2	1(4)	1(4)	1(4)	1(4)	1(4)				
Plant Prop. 241	(4)	(4)	(4)	(4)					
Botany 63	2(4)	2(4)	2(4)	2(4)	2(4)	2(4)			
Surveying 101	2(4)	2(4)	2(4)	2(4)	2(4)	2(4)	2(4)	2(4)	
Mech. Drawing 304							(8)	(8)	(8)
Woodwork 306					(4)	(4)			(8)
Sophomore Year.									
I									
Analytics 287							5	5	5
Physics 141				3(4)	3(4)	3(4)	3(4)	3(4)	3(4)
Eng. Comp. 165	1	1	1	1	1	1	1	1	1
Am. Literature 166	3	3	3	3	3	3			
Oratory 323	1	1	1	1	1	1	1	1	1
Latin 262						4			
German 265	3	3	3	3	3	3	3	3	3
Soils 3	2(4)	2(4)	2(4)						
Live stock Man. 23	2(4)	2(4)							
Fruit Growing 2 3			2(4)						
Plant Histology 5	1(6)	1(6)	1(6)	1(6)	1(6)				
Zoology 222				2(2)	2(2)	2(2)			
Chemistry 81	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)
Surveying 102							(4)		
Desc. Geometry 307							1(4)	1(4)	1(4)
Shopwork 308								(4)	(4)
II									
Algebra 288							3	3	3
Calculus 289							2	2	2
Physics 141				3(2)	3(2)	3(2)	3(2)	3(2)	3(2)
Eng. Comp. 165	1	1	1	1	1	1	1	1	1
Am. Literature 166	3	3	3	3	3	3			
Oratory 323	1	1	1	1	1	1			
Latin 262						4			
German 265	3	3	3	3	3	3	3	3	3
Soils 3	2(4)	2(4)	2(4)						
Farm Buildings 341	2(4)	2(4)							
Fruit Growing 243			2(4)						
Plant Physiology 66	2(4)	2(4)	2(4)	2(4)	2(4)				
Zoology 222				2(4)	2(4)	2(4)			
Chemistry 81	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)
Surveying 102							3		
Electricity 120								3	
Desc. Geometry 307							1(6)	1(6)	1(8)
Shopwork 308									(4)

Four-Year Courses—Continued.

Term and Subject.	Agriculture		Horticulture	Biology	Chemistry	General	Engineering		
	Agronomy	Animal Husbandry					Civil	Electrical	Mechanical
Sophomore Year—Continued.									
III									
Calculus 289	.....	.....	.....	.....	.....	.....	5	5	5
Physics 141	.....	.....	.....	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)
Eng. Comp. 165	1	1	1	1	1	1	1	1	1
Am. Literature 166	3	3	3	3	3	3	.....	.....	.....
Oratory 323	1	1	1	1	1	1	.....	.....	.....
Latin 262	.....	.....	.....	.....	.....	4	.....	.....	.....
German 265	3	3	3	3	3	3	3	3	3
Farm Crops 2 Farm Drainage 4	2(4)	2(4)	2(4)	.....	.....	.....	.....	.....	.....
Fertilizers 6	2(4)	2(4)	.....	.....	2(4)	.....	.....	.....	.....
Olericulture 242	.....	.....	2(4)	.....	.....	.....	.....	.....	.....
Zoology 222	.....	.....	.....	2(2)	2(2)	2(2)	.....	.....	.....
Entomology 223	2(4)	2(4)	2(4)	2(4)	.....	.....	.....	.....	.....
Chemistry 81	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)
Surveying 102	.....	.....	.....	.....	.....	.....	1(4)	.....	.....
Electricity 120	.....	.....	.....	.....	.....	.....	.....	3	.....
Desc. Geometry 307	.....	.....	.....	.....	.....	.....	2(2)	2(2)	2
Shopwork 309	.....	.....	.....	.....	.....	.....	.....	.....	(8)
Junior Year.									
I									
Calculus 289	.....	.....	.....	.....	.....	.....	5	5	5
Eng. Literature 167	3	3	3	3	3	3	3	3	3
English 169	.....	.....	.....	.....	.....	4*	.....	.....	.....
Eng. Comp. 170	1	1	1	1	1	1	1	1	1
History 184	.....	.....	.....	.....	.....	4*	.....	.....	.....
Oratory 324	.....	.....	.....	.....	.....	4*	.....	.....	.....
Civics 200	3	3	3	3	3	3	3	3	3
German 266	3	3	3	3	3	3	.....	.....	.....
French 267	.....	.....	.....	.....	.....	4	.....	.....	.....
Plant Production 5	3(4)	.....	.....	.....	.....	.....	.....	.....	.....
Farm Management 8	2	.....	.....	.....	.....	.....	.....	.....	.....
Breeds 21	.....	1(6)	.....	.....	.....	.....	.....	.....	.....
Breeding 22	.....	3	.....	.....	.....	.....	.....	.....	.....
Plant Morphology 67	.....	.....	2(4)	2(4)	.....	2(4)*	.....	.....	.....
Eco. Entomology 224	.....	.....	2(4)	2(4)	.....	2(4)*	.....	.....	.....
Org. Chemistry 82	3	3	3	3	3	3	.....	.....	.....
Qual. Analysis 83, 84	1(8)	1(8)	1(6)	1(6)	1(14)	1(6)	.....	.....	.....
Inorganic Prep. 85	.....	.....	.....	.....	(4)	(4) *	.....	.....	.....
Theo. Chemistry 86	.....	.....	.....	.....	2	2	.....	.....	.....
Surveying 102	.....	.....	.....	.....	.....	.....	4(4)	.....	.....
Drawing 103	.....	.....	.....	.....	.....	.....	(8)	.....	.....
Dynamos 121	.....	.....	.....	.....	.....	.....	.....	3	3
Elec. Lab. 127	.....	.....	.....	.....	.....	.....	.....	(4)	.....
Machine Design 310	.....	.....	.....	.....	.....	.....	.....	(4)	2(4)
Machine Work 311	.....	.....	.....	.....	.....	.....	.....	(6)	(6)
Steam Engines 312	.....	.....	.....	.....	.....	.....	3	3	3

Four-Year Courses—Continued.

Term and Subject.	Agriculture		Horti-culture	Biology	Chemistry	General	Engineering		
	Agronomy	Animal Husbandry					Civil	Electrical	Mechanical
Junior Year—Continued.									
II									
Eng. Literature 167.	3	3	3	3	3	3	3	3	3
English 169.						4*			
Eng. Comp. 170.	1	1	1	1	1	1	1	1	1
History 184.						4*			
Oratory 324.						4*			
Civics 200.	3	3	3	3	3	3	3	3	3
German 266.	3	3	3	3	3	3			
French 267.						4			
Animal Nutrition 27.		4							
Anat. and Phys. 342.	3	3							
Bacteriology 343.	2(4)	2(4)	2(4)	2(4)*	2(4)	2(4)**			
Floriculture 244.			2(2)						
GreenhouseCons.246			2(4)						
Economic Plants 68.	2(4)		2(4)	2(4)					
Zoology 225.		2(4)*		2(4)		2(4)**			
Sys. Entomology 226				2(4)*					
Quan. Analysis 87, 88	1(6)	1(6)*		1(4)	1(8)	1(4)***			
Org. Chemistry 89.					3	3***			
Mineralogy 90.					1(4)	1(4)***			
Drawing 103.							(8)		
Railway Eng. 104.							3		
Struct. Design 105.							2(4)		
Mech. Materials 106.							3	3	3
Dynamos 121.								4	4
Elec. Lab. 127.								(4)	
Machine Design 310.								(4)	2(4)
Machine Work 311.								(6)	(6)
Graph. Statics 315.							4	4	4
III									
Logic 168.	3	3	3	3	3	3	3	3	3
English 169.						4*			
Eng. Comp. 170.	1	1	1	1	1	1	1	1	1
History 184.						4*			
Oratory 324.						4*			
Business Law 202.	3	3	3	3	3	3	3	3	3
German 266.	3	3	3	3	3	3			
French 268.						3			
Farm Machinery 7.	2(4)	2	2(4)						
Dairying 24.	3	3(4)							
Animal Nutrition 27.		3(2)							
Floriculture 245.			3(2)						
Small Fruits 247.			2(2)						
Micro. Botany 69.				2(4)*	2(4)	2(4)**			
Plant Pathology 71.	2(4)		2(4)	2(4)					
Zoology 225.		2(4)*		2(4)		2(4)**			
Sys. Entomology 226				2(4)*					
Quan. Analysis 88.	1(4)	1(6)*		1(4)		1(6)***			
Org. Chemistry 89.					3				

Four-Year Courses—Continued.

Term and Subject.	Agriculture		Horticulture	Biology	Chemistry	General	Engineering		
	Agronomy	Animal Husbandry					Civil	Electrical	Mechanical
Junior Year—Continued.									
III—Continued.									
Vol. Analysis 92					2(12)	2(4)***			
Drawing 103							(4)		
Railway Eng. 104							3		
Struct. Design 105							2(4)		
Mech. Materials 106							5	5	5
Practical Prob. 111							(8)		
Dynamos 121								3	3
Batteries 126								2	
Elec. Lab. 127								(6)	
Elec. Design 129								(6)	
Machine Design 310									2(8)
Machine Work 311								(4)	(8)
Research and Thesis	(2)								
Senior Year.									
I									
Eng. Classics 171						4			
Psychology 172	4	4	4	4	4	4			4*
Eng. Comp. 174	1	1	1	1	1	1	1	1	1
Economics 201	4	4	4	4	4	4	4	4	4
Economics 203						4*			
Civics 204						4*			
Latin 263						4*			
German 266						4*			4*
French 269						4*			
Farm Management 8	2(2)								
Crop Production 9 or Soils 10	3(4)								
Dairying 24		1(8)*							
Stock Judging 25		(4)							
Animal Nutrition 27		2(2)							
Poultry 29		2							
Sys. Pomology 248			4(4)						
Fruit Harvesting 249	4(2)*		4(2)						
Landscape Gar. 251			2(2)						
Botany 73 or Entomology 232				4(6)					
†Electives				3(6)					
Quan. Analysis 88	(4)	(4)							
Agr. Chemistry 93	5*	5*			5 (22)	5 (6)*			
Agr. Analysis 94									
Hydraulics 107							3	3	
Highways 108							4		
Practical Prob. 111							(12)		
Alternators 122								4	
Elec. Lights 123								2	
A. C. Laboratory 128								(8)	
Struct. Design 317							2(4)		2(4)
Mech. of Eng. 318							3		3
Thermodynamics 319								3	3
Heat. and Vent. 320									2
Exp'mental Eng. 322									(8)
Research and Thesis	(2)	(4)	(4)	1(4)				(8)	

Four-Year Courses—Continued.

Term and Subject.	Agriculture		Horticulture	Biology	Chemistry	General	Engineering		
	Agronomy	Animal Husbandry					Civil	Electrical	Mechanical
Senior Year—Continued.									
II									
Eng. Classics 171						4			
Pedagogics 173	4	4	4	4	4	4	4*		
Eng. Comp. 174	1	1	1	1	1	1	1	1	1
Economics 201	4	4	4	4	4	4	4	4	4
Economics 203						4*			
Civics 204						4*			
Latin 263						4*			
German 266			4			4*	4*		
French 269						4*			
Farm Forestry 41	3(2)	3(2)	3(2)						
Wood Technology 42							1		1
Bacteriology 344	(8)	(8)							
Animal Diseases 346	5(6)	5(6)							
Horticulture 252			2(2)						
App. Entomology 230			2(4)						
Botany 73 or Entomology 232				4(6)					
†Electives				3(6)					
Organic Prep. 91					(16)				
Chemistry 95					6(4)	6(4)*			
Hydraulics 107							5	5	
Practical Prob. 111							(4)		
Computing 112							(4)		
Alternators 122								3	
Elec. Lights 123								2	
Tel. and Tel. 124								2	
A.C. Laboratory 128								(4)	
Struct. Design 317							2(4)*		2(6)
Mech. of Eng. 318							4		4
Thermodynamics 319									3
Hydro-mechanics 321									3
Exp'mental Eng. 322									(8)
Research and Thesis			(2)	1(4)			(4)	(12)	
III									
Eng. Classics 171						4			
Pedagogics 173	4	4	4	4	4	4	4*		
Eng. Comp. 174	1	1	1	1	1	1	1	1	1
Economics 201	4	4	4	4	4	4	4	4	4
Economics 203						4*			
Civics 204						4*			
Latin 263						4*			
German 266						4*	4*		
French 269						4*			
Crop Production 9 or Soils 10	3(4)								
Stock Judging 25		(4)							
Animal Nutrition 27		3(2)							
Plant Breeding 250	4(2)		4(2)						
Landscape Gar. 251			2(2)						
Horticulture 253			2						
Animal Parasites 231		4(2)							

Four-Year Courses—Continued.

Term and Subject.	Agriculture		Horti-culture	Biology	Chemistry	General	Engineering		
	Agronomy	Animal Husbandry					Civil	Electrical	Mechanical
Senior Year—Continued.									
III—Continued.									
Botany 73..... } or Entomology 232... }	.....	.....	.....	4(6)	.....	.....	.....	.....	.....
†Electives.....	.....	.....	.....	3(6)	.....	.....	.....	.....	.....
Chemistry 95.....	.....	.....	.....	.....	5(2)	5(6)*	.....	.....	.....
Surveying 101.....	.....	.....	.....	.....	.....	.....	(4)	.....	.....
Est. of Cost 109.....	.....	.....	.....	.....	.....	.....	1(2)	.....	.....
Concrete 110	.....	.....	.....	.....	.....	.....	2	.....	.....
Practical Prob. 111..	.....	.....	.....	.....	.....	.....	(4)	.....	.....
Alternators 122..	.....	.....	.....	.....	.....	.....	.....	5	.....
Tel. and Tel. 124....	.....	.....	.....	.....	.....	.....	.....	2	.....
Elec. Railways 125..	.....	.....	.....	.....	.....	.....	.....	3	.....
A.C. Laboratory 128.	.....	.....	.....	.....	.....	.....	.....	(4)	.....
Alt. Design 130.....	.....	.....	.....	.....	.....	.....	.....	(6)	.....
Struct. Design 317..	.....	.....	.....	.....	.....	.....	2(4)*	.....	2(6)
Mech. of Eng. 318...	.....	.....	.....	.....	.....	.....	4	.....	4
Thermodynamics319	.....	.....	.....	.....	.....	.....	.....	.....	3
Exp'mental Eng.322	.....	.....	.....	.....	.....	.....	.....	.....	(4)
Research and Thesis	2(8)	3(4)	(12)	1(4)	(20)	.....	(8)	(10)	2(8)

*Courses marked with asterisks are alternative.

†Biological students may elect the equivalent of the time named from the following courses: First Term—Agricultural Chemistry, Landscape Gardening, Dairying, or advanced courses in Physics, Zoology, Entomology, Botany, Languages, Horticulture and Agriculture. Second Term—Organic Chemistry, Forestry, Spraying, Experiment Station Methods, Scientific Illustrating, Greenhouse Management, Bacteriology, Animal Diseases, or advanced work in Economics, Botany, Zoology, Entomology and Languages. Third Term—Organic Chemistry, Farm Management, Farm machinery, Plant Breeding, Landscape Gardening, Spraying, Greenhouse Management, Dairying, or advanced studies in Botany, Zoology, Entomology, Languages and Horticulture.

Sub-Collegiate Courses.

Preparatory Year.				Sub-Freshman Year.			
Subject.	Term.			Subject.	Term.		
	I	II	III		1	II	III
Arithmetic 280	3	3	3	Algebra 282	5	5	5
Algebra 282	5	5	5	Plane Geometry 283	4	4	4
English 160	5	5	5	Physics 140	2	2	2
Elocution 320	(1)	(1)	(1)	Bookkeeping 281	.....	.....	(4)
U. S. History 180	5	5	.....	English 161	5	5	5
Md. History 181	.....	.....	5	Elocution 321	(1)	(1)	(1)
Phys. Geography 14	.....	(4)	.....	English History 182	(1)	(1)	(1)
Animal Husbandry 20	(2)	.....	.....	Latin 260	3	3	3
Horticulture 240	.....	.....	(2)	Agronomy 1	.....	.....	(2)
Plant Life 60	.....	.....	(2)	Forestry 40	.....	(2)	.....
Animal Life 220	(2)	.....	.....	Sanitation 340	.....	(2)	.....
Freehand Drawing 300	.....	(4)	(4)	Botany 61	(2)	.....	.....
Shop Work 302	(4)	.....	.....	Entomology 220	.....	.....	(2)
Physical Culture 330	(3)	(3)	(3)	Freehand Drawing 301	(4)	(4)	.....
				Hygiene 331	(2)	.....	.....
				Physical Culture 332	(2)	(2)	(2)

Two Year Courses.

First Year.		Second Year.			
Agriculture and Horticulture.		Agriculture.		Horticulture.	
TERM I.					
Soils 3	2(4)	Plant Production 5	3(4)	Small Fruits 247	2(2)
Breeds and Scoring 21	1(4)	Farm Machinery 7	2(4)	Systematic Pomology 248	4(4)
Fruit Growing 243	2(4)	Farm Management 8	2	Fruit Harvesting 249	2(2)
Seeds and Weeds 62	(4)	Principles of Breeding 22	3	Home Grounds 251	2(2)
Farm Chemistry 80	2(2)	Animal Nutrition 27	2	Farm Machinery 7	2(4)
Farm Arithmetic 280	3	Poultry 29	2	Farm Management 8	2
English 161	5	Systematic Pomology 248	(4)	Poultry 29	2
Farm Literature 162	(2)	Fruit Harvesting 249	2(2)	Farm Literature 162	(2)
		Farm Literature 162	(2)	English Composition 165	1
		English Composition 165	1		
TERM II.					
Soils 3	2(4)	Grain Judging 11	2(4)	Greenhouse Construction 246	2(2)
Plant Propagation 241	(2)	Stock Judging 25	(4)	GreenhouseCrops 244	2(4)
Fruit Growing 243	2(4)	Animal Nutrition 27	2	Spraying 229	1(2)
Farm Buildings 341	2(4)	Stock Feeding 28	(4)	Farm Forestry 41	3(2)
Farm Chemistry 80	2(2)	Farm Forestry 41	3(2)	Animal Diseases 347	2(4)
English 161	5	DairyBacteriology345	(2)	Farm Literature 162	(2)
Farm Literature 162	(2)	Animal Diseases 347	2(4)	English Composition 165	1
Mechanical Drawing 304	(4)	Farm Literature 162	(2)	Business Law 202	3
Farm Woodwork 306	(4)	English Composition 165	1	Pipe Fitting 311	(4)
		Business Law 202	3		
TERM III.					
Farm Crops 2 / Farm Drainage 4	2(4)	Fertilizers 6	2(4)	Olericulture 242	2(4)
Plant Propagation 241	(4)	Crop Production 9 or Soils 10	3(4)	GreenhouseCrops 244	2(4)
Farm Botany 64	2(4)	Dairying 24	3(4)	Plant Breeding 250	4(2)
Farm Zoology 227	2	Olericulture 242	2(4)	Fertilizers 6	2(4)
Farm Chemistry 80	2(2)	Plant Diseases 70	2(2)	Plant Diseases 70	2(2)
Farm Accounts 281	(4)	Insect Pests 228	2(2)	Insect Pests 228	2(2)
English 161	5	Farm Literature 162	(2)	Farm Literature 162	(2)
Farm Literature 162	(2)	English Composition 165	1	English Composition 165	1

GENERAL INFORMATION.

REQUIREMENTS FOR ADMISSION.

For admission to classes other than the Freshman, an examination is required. This examination is not a memory test, but is rather a series of questions offered with a view to ascertaining the applicant's general knowledge of the principles involved. Examinations for 1911-12 will be held at the College on Tuesday, September 12th, and Wednesday, September 13th. Morning sessions will begin at 9.30; afternoon sessions, at 1.00 o'clock. To candidates for admission to the Freshman Class who have not a diploma from an approved institution, examinations will be offered in English grammar, composition and analysis, United States history, arithmetic complete, algebra complete, and plane geometry.

Examinations for the Sub-Freshman Class will be less rigid in English and history, with algebra required up to quadratics and arithmetic complete.

For entrance to the Preparatory Class, the requirements are: Elementary English grammar, arithmetic as far as percentage, a general knowledge of the facts of United States history and geography.

Applicants who desire assignment to classes more advanced than the Freshman must be prepared to take an examination equivalent to that given at the College for promotion to the class they desire to enter. Experience has proved that it is almost impossible for a new student to succeed in the work of the Mechanical Course as a Sophomore; and such assignment will be made only upon the candidate presenting satisfactory evidence of proficiency in drawing and wood work.

Every applicant for admission to the College must bring satisfactory testimonials as to his character and scholarship from his former teacher. This will be absolutely insisted upon. No student need apply for entrance who cannot furnish such credentials.

Students from newly acquired territory or any foreign country must have a local guardian appointed with parental powers, with whom the President can deal in any case of emergency. Students who cannot speak English are undesirable, and are advised that satisfactory progress at this College on their part cannot be expected

until they have familiarized themselves partly, at least, with the English language.

EXAMINATIONS AND PROMOTIONS.

In order to pass from one class to the next higher a student is required to pass an examination in each study pursued, by a mark of at least sixty per cent., and to have a combined mark in each branch (daily and examination) of at least seventy per cent.

A student will not be promoted if it is manifest that he cannot pursue successfully the advanced work.

For rules for military promotions see Military Department.

REPORTS.

Detailed reports are sent to parents and guardians at the end of every quarter. These give the grade of the student in every branch of study, his attendance record, and his conduct record with comment by the President upon each item.

In addition to this, monthly reports are issued for October, November, January, February and April. These give general information as to scholarship, conduct, attendance and health, and call attention to deficiency in any one of these particulars.

GRADUATION AND DEGREES.

Degrees are granted by the Board of Trustees upon the recommendation of the Faculty.

All applications for degrees must be approved by the Faculty.

BACHELOR OF SCIENCE.

As a requisite for graduation the candidate for this degree must have completed the work previously outlined, including a thesis.

The subject for this thesis must be approved prior to February 1st, by the head of the department in which the investigation is to be pursued, and the thesis must be submitted not later than May 15th.

MASTER OF SCIENCE.

The degree of Master of Science may be conferred as follows:

1. Upon persons who have taken the degree of Bachelor of Science in a recognized institution, and have pursued successfully at this College for one year a course of graduate study, satisfying the following requirements:

The course shall consist of a major subject and two minor subjects germane to the major subject and shall be approved by the professor in charge of the major subject.

At least one minor subject shall be in a different department from the major subject.

The course shall occupy not less than fifteen credit periods per term.

Not fewer than five credit periods per term shall be devoted to the minor subjects.

A thesis satisfactory to the professor in charge of the major subject shall be presented.

2. Upon college graduates of not less than two years' standing, who are employed in any of the departments of the College, including the Experiment Station, and who have completed the equivalent of the above course of study. Candidates under this clause must have their applications approved at least eighteen months before they contemplate receiving their degree.

3. Upon graduates of this College of not less than three years' standing, who having been connected with institutions of learning or research, where adequate facilities for advanced work are available, have completed a course equivalent to (1) and have presented a satisfactory thesis.

MASTER OF ARTS.

The degree of Master of Arts may be conferred upon graduates of this College holding the Bachelor of Arts degree, and who conform to the following rules:

1. The candidate must apply for the degree in writing at least one scholastic year before the degree may be conferred. The application must contain a description of the extra work, by virtue of which the candidate expects to receive the degree.

2. The candidate must submit one or more theses on subjects assigned by the Professor of English and Civics; said thesis or theses must be approved by the President of the College, the Professor of English and Civics and the Professor of Languages of this College.

3. The candidate must be prepared to submit to an examination in the works of the following authors: Cæsar, Nepos, Sallust, Virgil, Cicero, Ovid, Horace, Livy, Tacitus, Plautus, Terence, Juvenal.

MECHANICAL ENGINEER.

The degree of Mechanical Engineer (M. E.) may be conferred as follows:

1. Upon graduates of this College of not less than three years' standing, who having been connected with institutions of learning or research, where adequate facilities for advanced work are available, have completed a course consisting of a major and two minor subjects, and presented a satisfactory thesis. The course of study shall be outlined by the heads of the Departments of Civil, Electrical and Mechanical Engineering.

2. Upon graduates of this College who have had three years' professional experience of an acceptable character. Such candidates must present a full report of such experience and such other information as to the qualifications for the degree as may be found desirable, and in addition shall present a satisfactory thesis.

3. All candidates must be at least Junior members of the American Society of Mechanical Engineers. All applications for degrees must be approved twelve months prior to the date they contemplate receiving the degree, and the thesis must be presented at least one month prior to such date.

CIVIL ENGINEER.

The degree of Civil Engineer may be conferred upon any candidate who is a graduate of this College with the degree of Bachelor of Science in Civil Engineering, and has been engaged in engineering pursuits for not less than three years since graduation, provided:

1. That he shall be at least a Junior member of the American Society of Civil Engineers.

2. That he shall accompany his application with a synopsis of the work upon which he bases his request.

3. That the Committee composed of the heads of the Civil, Electrical and Mechanical Engineering Departments, to whom his application shall be referred, shall consider him eligible.

4. That previous to receiving the degree he shall comply with such further conditions as the aforesaid committee shall impose.

SCHOLARSHIPS.

REGULAR.—To encourage worthy young men who desire a collegiate education, the Board of Trustees has established for each county in the State of Maryland and for each of the four legislative districts of Baltimore City one scholarship to be awarded on the following conditions:

(1) The holder of the scholarship will be allowed a reduction of $120.00 from the regular annual charge of $240.00 for board, heat, light, room, use of books, laundry, etc.

(2) The appointment is made by the School Board of each county and of Baltimore City after due notice in some local paper.

(3) In case there are more applicants than one, the selection shall be made by competitive examination and the candidate who proves best qualified by such examination shall be selected for this scholarship.

(4) In case of a tie, the award shall be made to the candidate less able financially to meet the expense of an education.

(5) An alternate may be named and certified to the President of the College and said alternate shall be eligible to hold the scholarship if the principal shall fail to qualify or withdraw during the year succeeding his appointment.

(6) The appointment shall be made for a term of four years.

(7) The holder of such scholarship: (a)—must be qualified to enter the Sub-Freshman Class of this College, that is, he shall have a competent knowledge of arithmetic, algebra as far as quadratics, geography, history of Maryland and history of United States, Eng-

lish grammar and composition; (b)—must be of approved moral character and at least 15 years of age.

(8) The scholarship will be forfeited by persistent indifference to scholastic work or by continued disregard of the rules of discipline of the College.

(9) The scholarship will be forfeited in case the holder fails of promotion at the end of any scholastic year, unless there are extenuating circumstances.

(10) Certificates will be furnished in blank by the College and one shall be given to the successful applicant and a duplicate sent to the President of the College.

(11) In case any county or district fails to send one or more candidates for examination to fill an existing vacancy, or in case of the failure of both principal and alternate to meet the requirements of the College, the vacancy may be filled for the current Collegiate Year at the discretion of the President, by any meritorious student from another county who meets the requirements, and at the end of that year, the vacancy shall be again certified to the county or district to which it pertains.

INDUSTRIAL.—For the encouragement of worthy young men of limited means, towards getting a college education, a limited number of industrial scholarships has been established by the Board of Trustees to be awarded under the following conditions:

(1) The number of scholarships will depend upon the amount of service required.

(2) The holder will receive a reduction of $140.00 from the regular annual charge of $240.00 for board, heat, light, room, use of books, laundry, etc.

(3) In consideration of this reduction, the holder of such a scholarship will be required to render to the College certain specified services such as work in the dining-room, on the corridors, in the library, etc.

(4) Such services will not prevent the holder from drilling with the cadet battalion on alternate days.

(5) Vacancies as they occur shall be filled by the President of the college and ratified by the Executive Committee of the Board of Trustees.

(6) The holder of an industrial scholarship: (a)—must be more than 15 years of age and of normal size, health and strength; (b)—

must be of approved moral character as attested by some well known resident of his locality; (c)—must be qualified to enter the Sub-Freshman Class of the College, that is, he shall have a competent knowledge of arithmetic, algebra as far as quadratics, geography, history of Maryland and history of United States, English grammar and composition.

(7) The appointment shall be made for a term of four years.

(8) The scholarship will be forfeited by persistent indifference to scholastic work or by continued disregard of the rules of discipline of the College.

(9) The scholarship will be forfeited in case the holder fails of promotion at the end of any scholastic year, unless there are extenuating circumstances.

(10) The scholarship will be forfeited in case the services required of the holder are not satisfactory to those in charge of the work.

STUDENT OPPORTUNITIES.

A limited amount of money can be earned by students by taking advantage of the opportunities arising from time to time to do clerical work, tutoring and such other labor as may not interfere with the regular scholastic duties. Those in need of help to continue their work, and whose course is marked by an earnest desire to succeed, are always given the preference.

FACILITIES FOR RELIGIOUS WORSHIP.

The College is undenominational in character. The daily exercises of the College are opened with religious worship in the College Chapel.

Students are encouraged to attend the church of their choice on Sunday mornings. There is an Episcopal church at College Park; and at Berwyn, one mile north, and at Riverdale, one mile south, are Presbyterian churches. In Hyattsville, two miles south, may be found Catholic, Episcopal, Presbyterian, Baptist and Methodist churches. In the city of Washington are churches of all denominations, and leave is granted to students to attend service in this city on Sunday mornings. Parents are urged to insist upon their sons attending the church of the faith of their parents.

COLLEGE REGULATIONS.

The attention of parents is earnestly called to the following rules in force at this College: The College authorities can succeed in conferring the maximum amount of training upon the student only with and by the active support and earnest co-operation of the parent. The President of the College is always ready and willing to discuss any failures in a student's record with his parent or guardian, and correspondence on this subject is always appreciated.

No student will be accepted as a matriculate until the contract card containing the following agreement for matriculation is signed by parent or guardian, and received by the President of the College.

"It is understood that the President of the College as the executive of the same, and acting for the Board of Trustees, a party to this contract, **has the right to ask the withdrawal of a student at any time, when in his judgment such withdrawal may be necessary either for the interest of the young man or the institution which he attends. It is further understood that a parent or guardian can at any time withdraw his son or ward, subject to regulations herein set forth.**

A cadet manifesting indifference to the observance of the rules and regulations of the institution, or wanting in proper attention to the preparation of his work, will be cautioned to improve. Failing to do so his parents, upon notice given by the President, must withdraw their son.

A special pledge to refrain from what is popularly known as **"hazing,"** and taking unfair means in examinations is required of every applicant for entrance, before he will be allowed to matriculate. Parents should impress upon their sons that failure to live up to this pledge is a dishonor which unfits them to be longer students of the College. **"Hazing" is invariably punished by instant dismissal.**

Frequent absences from the College are invariably of great disadvantage to the student, in breaking in upon the continuity of his work and in distracting his mind from the main purpose of his attendance at the institution. Parents are therefore earnestly asked to refrain from granting frequent requests to leave the College.

Students will not be permitted to leave classes or quarters during study hours to answer telephone calls, unless they are urgent.

Students will not be permitted to make contracts or to sell any article of their associates without the approval of the President.

The sale of second hand furniture or clothing to new cadets is prohibited unless the sale be approved by the Commandant of Cadets.

The College will not be responsible for articles left in the barracks during vacation, nor for valuables left by students in their rooms at any time. They should be deposited with the College Treasurer, who will place them in the College safe and give a receipt therefor.

RULES OF COMMITTEE ON COLLEGIATE ROUTINE, ENDORSED BY THE FACULTY.

1. A student may not change his course of study unless at the written request of his parent or guardian, and after said request has been endorsed by the head of the course abandoned, and the head of the course requested, and approved by this committee.
2. Examinations to make up conditions acquired in any term will be given only on the mornings and afternoons of certain Saturdays in the following term set apart for this purpose, and at such dates as shall be provided for entrance examinations at the beginning of the scholastic year. On these dates students having conditions will be expected to take the examinations as scheduled and will be permitted to do so without the payment of a fee. Should, for any reason, an examination be requested at any other time, a charge of $1.00 will be made for each subject on which the applicant is examined, provided that all such special examinations shall be authorized by the faculty.
3. To attain proficiency a student must make an examination grade of 60 per cent.; also a term average of 70 per cent. In case of failure, upon re-examination a grade of 70 per cent. is required.
4. A credit period is one theoretical or two practical periods per week for one term.
5. A student may not be promoted if conditioned in more than one-fifth of the credit periods required for one year's work, provided that no student may be promoted with more than one condition in any one department.
6. A student may not be promoted if he has any conditions of more than a year outstanding.
7. A student may not be promoted from the Preparatory Department with any condition.
8. Any student who uses unfair means in examination will: (1) receive no further examination in same subject; (2) receive zero for examination grade; (3) receive no commission; (4) receive no diploma.
9. A student is subject to an oral examination at any time within ten days after written examination.
10. An examination paper, containing erasures or showing alterations, may be rejected at the discretion of the Professor in charge, and a new examination ordered by this committee.
11. In computing term averages the daily grade is computed at 2, and the examination grade at 1.

12. The yearly averages in all studies is computed by giving each subject a weight according to the mean number of periods per week involved; theoretical periods being given a value of 2, practical periods 1.

13. Senior students must submit subjects for graduating theses prior to February 1st, and all theses for graduation must be completed prior to May 15th.

14. No special courses are permitted save by consent of this committee. In case consent is granted for a special course, the certificate awarded attesting work will not have the College seal nor the Governor's signature.

15. No student may take work in more than one class during any one term.

STUDENT EXPENSES.

The expenses of the College Year for the several classes of students are as follows:

BOARDING STUDENTS.—Board, heat, light, room, use of books, and laundry, $60.00 per quarter.

SCHOLARSHIP STUDENTS.—Board, heat, light, room, use of books, and laundry, $30.00 per quarter.

DAY STUDENTS.—Room, heat, tuition, and use of books, $12.50 per quarter.

SHORT WINTER COURSE STUDENTS.—Board, heat, light, room, and use of books, for the course, $40.00.

Students entering College after November 1st, or withdrawing prior to the close of the scholastic year, will be charged for the time they are in attendance, as follows:

Boarding students at the rate of $30.00 per month.

Scholarship students at the rate of $15.00 per month.

Day students at the rate of $6.00 per month.

Students withdrawing more than two weeks after entrance will be charged for at least one month's attendance.

Students withdrawing less than two weeks after entrance, will be charged at the rate of $2.00 per day.

Table board for students not rooming at the College, will be $14.00 per month, or 25 cents per meal.

Students are required to deposit with the Treasurer upon entering the College $15.00 to cover room supplies for the year and general breakage. A deduction in this amount will be made for students furnishing their own supplies.

No diploma will be conferred upon, nor any certificate issued to any student who is in arrears in his account with the College.

Students failing to pay the quarterly charges within 30 days from time due, will be required to withdraw until settlement is made.

No reductions are made for regular vacations.

TIME OF PAYMENT.

For Boarding Students, $60.00 on entrance, $60.00 November 15th, $60.00 February 1st, $60.00 April 1st.

For Scholarship Students, $30.00 on entrance, $30.00 November 15th, $30.00 February 1st, $30.00 April 1st.

For Day Students, $12.50 on entrance, $12.50 November 15th, $12.50 February 1st, $12.50 April 1st.

Students will be required to pay a fee of 25 cents per piece for transportation of baggage to and from station.

In cases of illness, requiring a special nurse and medical attention, the expense must be borne by the student.

Students will be admitted free of cost to membership in the College Athletic Association.

All College property in the possession of the individual student, such as his room, furniture, books, apparatus and military equipment will be charged against him, and the parent or guardian must assume responsibility for its return without abuse to the proper department at the end of each scholastic year, at which time the account will be cancelled. If abused, the cost of replacing or repairing the abused article must be paid by the parent or guardian.

Damage to College property in public places in the building and on the grounds by the student will be charged to the whole student body, pro rata, unless the offender is known. In such cases, the whole expense of repairing or replacing the damaged property will be charged to the parent or guardian of the offending party. The matriculation of a student is evidence of the acceptance of this regulation.

UNIFORM.

The uniform is the same as worn at the United States Military Academy at West Point. It is made of the best Charlottesville gray cloth, under a special contract with one of the best Military

Equipment Houses in the United States. This uniform is furnished at a very low price.

The uniform consists of gray fatigue blouse, gray fatigue trousers and gray fatigue cap, with white waist belt and white cross belt for all military formations. The cost of this uniform and equipment last year was:

Fatigue blouse	$7.95
Fatigue trousers	5.45
Fatigue cap	1.60
White waist belt with plate	.50
Whitecross belt and equipment	.50
Total	$16.00

Measures for these uniforms are taken as soon as the student arrives at College, and fit is guaranteed.

Deposits for this uniform must be made with the Treasurer when the measure is taken, as no uniform will be ordered until the money has been deposited for the same. No uniform is paid for until it is approved by the Commandant of Cadets.

In summer the field service uniform is worn consisting of blue chambray shirt, gray trousers, puttee leggings, regulation campaign hat, black leather waist belt and black tie.

The cost of the summer outfit is:

4 chambray shirts at 45 cents	$1.80
1 campaign hat	.95
1 pair puttee leggings	.85
1 black leather belt	.20
1 black four-in-hand tie	.20
2 pair of white duck trousers	2.50
Total for summer uniform	$6.50

Deposits for the summer uniform must be made immediately after the first of January.

The gray military overcoat has been adopted by the College as the regulation overcoat. It is made of the same material as the

uniform and is a warm and durable garment which will last for years. The purchase of the overcoat is optional, but it is advised that it be purchased since no overcoat other than the gray may be worn with the uniform. The cost is $19.75.

White gloves, collars, etc., can be purchased at the stores near the College.

ARTICLES NECESSARY TO BE PROVIDED.

All students are required to provide themselves with the following ing articles, to be brought from home or purchased from the College Park stores on arrival:

1 dozen white standing collars.
6 pairs white gloves (uniform).
6 pairs white cuffs.
1 pair blankets (for single bed).
2 pairs sheets (for single bed).
4 pillow cases.
1 chair (uniform).
6 towels.
8 table napkins.
1 pillow.
1 mattress (uniform).
2 clothes bags (uniform).
1 broom.

All the articles marked (uniform) in the foregoing list can best be purchased after the student arrives at the College. The cost of the entire list should not be more than $15.00 for the year. This should be paid to the Treasurer on entrance, as the College has no fund from which it can make advances, and failure to comply with this requirement will subject the student to much inconvenience. Any unexpended balance will be returned promptly.

ACKNOWLEDGMENTS.

DONATIONS.—Grateful acknowledgment is hereby made to the Hon. Peter Novik, State Horticulturist of Norway, for a number

of valuable specimens of pressed plants and grasses, donated to the Botanical Department in memory of the late Professor Peter Novik, who collected and arranged these specimens when connected with this Institution as Associate Professor of Horticulture.

The Library is indebted to Mr. Alexander M. Fulford, of Bel Air, Md., for sets complete to date, of the "Country Gentleman" and "Breeders' Gazette," respectively.

MEDALS.—The authorities of the Institution take this opportunity to express their appreciation of the courtesy of their friends in establishing the following, for competition:—

William Pinkney Whyte Medal, for excellence in Oratory, offered by Hon. Isaac Lobe Straus, of Baltimore, Md.

Winfield Scott Schley Prize, for excellence in Oratory, offered by B. H. Warner, Esq., of Kensington. Md.

James Douglas Goddard Memorial Medal, to student of Prince George County making the highest average in studies, offered by his sister, Mrs. Annie K. Goddard James, of Washington, D. C.

STUDENT ORGANIZATIONS.

Students' clubs for religious, social, literary and athletic purposes are encouraged as a means of creating class and college pride, and developing an **esprit de corps** among the students. Each class has its own organization, in which matters relating to the class are discussed and directed. Officers are elected and the unity of the class preserved. This has been found to be a decided aid to discipline and tends to raise the standard of student honor.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

President, D. W. Glass.
Vice-President, F. E. Anderson.
Secretary, E. V. Benson.
Treasurer, G. P. Trax.

Much encouraging work has been done by this organization during the past year, and gratifying interest has been shown in the meetings.

LITERARY SOCIETIES.

These societies are invaluable adjuncts to college work. Through them a knowledge of parliamentary law is gained, as well as a readiness of expression and activity in thought, qualities particularly valuable to the American citizen.

The literary society work is under the general supervision of the Professor of Oratory, who is always ready to advise with the members in matters of parliamentary law and train them in the delivery of their orations and debates.

NEW MERCER SOCIETY.

President, M. W. McBride.
Vice-President, W. B. Kemp.
Secretary-Treasurer, H. S. Koehler.

MORRILL SOCIETY.

President, K. Mudd.
Vice-President, G. P. Trax.
Secretary-Treasurer, V. Roby.
Sergeant-at-Arms, A. N. Woodward.

ROSSBOURG CLUB.

The social man is a necessity—hence this organization is encouraged and supported by the President and Faculty. The entertainments have been marked by a spirit which emphasizes the wisdom of its organization and justifies its encouragement.

President, L. M. Silvester.
Vice-President, H. R. Devilbiss.
Secretary-Treasurer, F. A. Mudd.

REVEILLE.

The "Reveille" is the College annual, edited entirely by the Senior Class. Fourteen editions of the "Reveille" have appeared.

and each has been characterized by a gratifying improvement in the standard both of originality and expression.

EDITORIAL STAFF.

Editor-in-Chief, H. S. Cobey.
Associate Editors, F. A. Mudd, H. Stabler, J. C. Reese, D. W. Glass, T. Davidson.
Business Manager, P. R. Little.
Associate Business Managers, W. H. Mays, H. R. Devilbiss, O. R. Andrews.
Treasurer, L. M. Silvester.

DEPARTMENT EDITORS.

Athletics, C. C. Furniss, C. A. Chaney.
Humorous, L. G. True.
Social, F. A. Mudd.
Class History, F. A. Mudd.
Art, J. W. Kinghorne.

THE TRIANGLE.

The "Triangle" is the College newspaper, and is published every two weeks during the scholastic year.

EDITORIAL STAFF.

Editor-in-Chief, F. A. Mudd.
Associate Editor, H. S. Cobey.
Junior Editor, W. B. Kemp.
Sophomore Editor, G. P. Trax.
Freshman Editor, H. A. Rasmussen.
Business Manager, P. R. Little.
Assistant Business Managers, C. A. Chaney, J. G. O'Conor.

STUDENT ATHLETIC ASSOCIATION.

Membership in the Athletic Association is open to all students free of charge.

The object of the association is to foster athletic spirit, prevent indiscretion in athletic matters and co-operate with the Athletic Council in the general management of all athletic affairs.

OFFICERS.

President, L. M. Silvester.
Vice-President, C. C. Furniss.
Secretary, J. C. Reese.
Treasurer, W. H. Mays.

ATHLETIC COUNCIL.

The Athletic Council, in conjunction with the Student Athletic Association, manages all athletic affairs. It consists of three members of the Faculty, appointed by the President, and five students, namely, the managers of the foot-ball, base-ball, track and tennis teams, and the President of the Athletic Association.

THE ORATORICAL ASSOCIATION OF MARYLAND COLLEGES.

The Maryland Agricultural College is a member of this Association, which is composed of St. John's College, Washington College, Western Maryland College and Maryland Agricultural College. Contests are held annually at these colleges in rotation, and a marked improvement is to be observed as a result of its organization.

THE ALUMNI ASSOCIATION.

The Alumni Association is steadily growing in two ways; that is to say, recent graduates almost invariably become active members, and the graduates of the earlier days of the College are becoming more active and more interested in all that pertains to the welfare of their Alma Mater.

The Association has continued the offer of medals for worthy students in the several collegiate departments, and there is no doubt as to the wisdom of stimulating in this way the energies of the students. The enrollment of the Alumni Association is now reaching a point where some definite accomplishment can be effected, and each individual should be ready to suggest a desirable project, and, at the same time, to assist in the execution of that object which is most feasible and popular with the Association at large.

The entire institution as viewed from the Alumni standpoint is worthy of the confidence of its patrons and the public. Each of us should feel that every step in advance of that achieved in our day, should give us a feeling of pride, that it is in a manner the result of the successful completion of the work then offered, and should bind us more closely to the work of the present and to the broadening of the scope in the future.

The advent of the Triangle, published by the students of the College and devoted to the interests of the College Students and Alumni, is looked upon as being a most progressive step. The Alumni page, through its editor, Mr. E. P. Walls, '03, has been most interesting and instructive.

The officers for the year are: President, W. D. Groff, '00; Vice-President, S. M. Peach, '00; Secretary-Treasurer, T. B. Symons, '02; Executive Committee, members at large, R. H. Dixon, '06; S. H. Harding, '95.

Graduates and members of the association are requested to keep the Secretary-Treasurer, T. B. Symons, College Park, Md., informed of any changes in their addresses. Any information concerning the older graduates which will enable the officers to locate and communicate with them will facilitate their efforts and will tend to further the success of the Association.

CANDIDATES FOR DEGREES TO BE CONFERRED IN 1911, WITH SUBJECTS OF THESES.

BACHELOR OF SCIENCE IN AGRICULTURE.

OLIN RAY ANDREWS, HURLOCK, MD.

"Influence of the Size of the Germ of Corn (Zea mays) upon Germination, early and late Root Development, Drought Resistance and early Growth of Plant."

FRANCIS ADRIAN MUDD, WASHINGTON, D. C.

"Some Investigations of the Hog Industry in Maryland."

JOSEPH WILLIAM KINGHORNE, BALTIMORE, MD.

"The Production of Chickens and Eggs for Market."

BACHELOR OF SCIENCE IN HORTICULTURE.

PAUL REVERE LITTLE, FUNKSTOWN, MD.

"Spring versus Fall planted Vegetables."

JOSEPH KELLER SMITH, MYERSVILLE, MD.

"Nut Culture."

HENRY STABLER, BRIGHTON, MD.

"Methods of preventing Fungous Diseases of Lettuce."

BACHELOR OF SCIENCE IN BIOLOGY.

PAUL RIDEOUT BARROWS, BERWYN, MD.

"Seed Germination under Pathological Conditions."

BACHELOR OF SCIENCE IN CHEMISTRY.

JOHN CAMPBELL REESE, GWYNNBROOK, MD.

"Distillation of Ammonia."

LINDSAY MCDONALD SILVESTER, JR., PORTSMOUTH, VA.

"Synthetic Camphor."

HERBERT JAMES WHITE, COLLEGE PARK, MD.

"Solubility of Phosphates in Acid."

BACHELOR OF SCIENCE IN CIVIL ENGINEERING.

HARRY SPEAKE COBEY, WASHINGTON, D. C.

THOMAS DAVIDSON, DAVIDSONVILLE, MD.

HOWARD ROLAND DEVILBISS, NEW WINDSOR, MD.

"Drainage System for a Portion of the College Farm."

CHARLES CATOR FURNISS, CRISFIELD, MD.

"The Design and Detailing of a Pin Connected Pratt Highway Bridge."

DAVID WILSON GLASS, BALTIMORE, MD.

"The Analytical and Graphical Method of Detailing Bridge Skew Connections."

BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING.

CHARLES ATWELL CHANEY, REISTERSTOWN, MD.

"The Second and Third Equations and the Parabolic Oval."

CLINTON RAYMOND DRACH, NEW WINDSOR, MD.

"Some Solutions in Applied Mechanics."

WALTER HICKS MAYS, GLENCOE, MD.

"The Design of a 25 Ton Traveling Crane."

ARTHUR THEODORE SONNENBERG, BLADENSBURG, MD.

"The Design of a Standard Railroad Turntable."

LELAND GOODRICH TRUE, WASHINGTON, D. C.

"Some Solutions of the Integral Calculus."

CANDIDATES FOR CERTIFICATES IN 1911—Two-Year Courses.

AGRICULTURE.

CHARLES FRANKLIN CRANE, CALIFORNIA, MD.

PAUL WALTER GOELTZ, NEW YORK CITY, N. Y.

JOSEPH LYNWOOD TAYLOR, WISHART, VA.

HENRY CLAY TRAX, EASTON, MD.

ARTHUR NEWTON WOODWARD, CAMDEN, N. J.

HORTICULTURE.

ISAAC HAAS, WASHINGTON, D. C.

WILLIAM HOWARD MCGINNES, MILLINGTON, MD.

DAVID CUTTS MALCOLM, WASHINGTON, D. C.

JOHN CAUSEY MORRIS, RIVERDALE, MD.

IRVING LEWIS TOWERS, CHEVY CHASE, MD.

MEDALS AND PRIZES AWARDED JUNE 15th, 1910.

For excellence in the Agricultural Course; offered by the Alumni Association:

F. J. MAXWELL, OF MARYLAND.

For excellence in the Horticultural Course; offered by the College:

C. W. STRICKLAND, OF MARYLAND.

For excellence in the General Science Course; offered by the College:

J. L. DONALDSON, OF MARYLAND.

For excellence in the Chemical Course; offered by the College:

J. W. DUCKETT, OF MARYLAND.

For excellence in the Civil Engineering Course; offered by the College:

O. H. SAUNDERS, OF MARYLAND.

For excellence in the Mechanical Engineering Course; offered by the Alumni Association:

M. H. WOOLFORD, OF MARYLAND.

For excellence in Debate; offered by the Alumni Association:

M. E. TYDINGS, OF MARYLAND.

The William Pinkney Whyte Medal, for excellence in Oratory; offered by Isaac Lobe Strauss, Esq.:

M. W. MCBRIDE, OF MARYLAND.

MILITARY ORGANIZATION.

COMMANDANT OF CADETS.

Captain Edgar T. Conley.....Fifteenth Infantry, U. S. A.

BANDMASTER AND ASSISTANT TO COMMANDANT.

L. G. Smith.....Ex-Sergeant Ninth Band, C. A. C.

BATTALION STAFF.

F. A. Mudd.....Cadet Major.
J. W. Kinghorne.....First Lieutenant and Adjutant.
Thomas Davidson.....First Lieutenant and Quartermaster.
J. M. Lednum.....Sergeant Major.
E. V. Benson.....Color Sergeant.

CADET BAND ORGANIZATION.

L. G. Smith, Bandmaster.

J. W. Kinghorne.....Adjutant-Commanding.
P. R. Little.....Principal Musician.
E. R. Burrier.....Chief Trumpeter.
J. A. Miller.....Sergeant.
W. A. Furst.....Sergeant.
W. L. Warfield.....Sergeant.
E. J. Merrick.....Corporal.
A. W. Myers.....Drum Major.

COMPANY OFFICERS AND NON-COMMISSIONED OFFICERS.

COMPANY A	COMPANY B	COMPANY C
	CAPTAINS.	
L. Mc. D. Silvester.	C. C. Furniss.	L. G. True.
	FIRST LIEUTENANTS.	
O. R. Andrews.	C. A. Chaney.	D. W. Glass.
	SECOND LIEUTENANTS.	
H. S. Cobey.	H. R. Devilbiss.	H. J. White.
	FIRST SERGEANTS.	
G. B. Posey.	K. Mudd.	W. B. Kemp.
	SERGEANTS.	
J. G. O'Conor.	F. E. Anderson.	V. Roby.
N. R. Warthen.	A. C. Stanton.	H. Sonnenberg.
J. L. Taylor.	W. S. Grace.	N. L. Clark.
	CORPORALS.	
G. P. Trax.	H. S. Koehler.	J. W. F. Hatton.
H. P. Ames.	M. B. Mayfield.	M. E. Davis.
H. E. Bierman.	E. T. Russell.	G. B. Morse.
W. B. Hull.	R. C. Williams.	B. W. Crapster.
	FIELD MUSIC.	
	C. F. Crane, Chief Bugler.	
Paul Blundon.	H. U. Deeley.	J. B. Gray, Jr.
R. N. Todd.	A. E. Irving.	H. C. Clark.

ROSTER OF MATRICULATES.

SESSION 1910-11.

GRADUATE STUDENTS.

NAME.	POST OFFICE.	COUNTY.
ADAMS, A. C., E. S.	*Takoma Park*	*District of Columbia*
ALLISON, J. F., B. S.	Clemson College	*South Carolina*
BROUGHTON, L. B., B. S.	College Park	Prince George
CORY, E. N., B. S.	College Park	Prince George
HAYMAN, E. T., B. S.	Annapolis	Anne Arundel
MACKALL, J. N., B. S.	Baltimore	*Baltimore City*

SENIOR CLASS.

ANDREWS, O. R.	Hurlock	Dorchester
BARROWS, P. R.	Berwyn	Prince George
BURNS, J. M.	Morgantown	*West Virginia*
CHANEY, C. A.	Reisterstown	Baltimore
COBEY, H. S.	Washington	*District of Columbia*
DAVIDSON, T.	Davidsonville	Anne Arundel
DEVILBISS, H. R.	New Windsor	Carroll
FURNISS, C. C.	Crisfield	Somerset
GLASS, D. W.	Baltimore	*Baltimore City*
KINGHORNE, J. W.	Baltimore	*Baltimore City*
LITTLE, P. R.	Funkstown	Washington
MAYS, W. H.	Glencoe	Baltimore
MELVIN, M. H.	Baltimore	*Baltimore City*
MUDD, F. A.	Washington	*District of Columbia*
REESE, J. C.	Gwynnbrook	Baltimore
SILVESTER, L. M.	Portsmouth	*Virginia*
SMITH, J. K.	Myersville	Frederick
SONNENBERG, A. T.	Bladensburg	Prince George
STABLER, H.	Brighton	Montgomery
TRUE, L. G.	Washington	*District of Columbia*
WHITE, H. J.	College Park	Prince George

JUNIOR CLASS.

ALLEN, F. W.	Salisbury	Wicomico
ANDERSEN, W. M.	Govans	Baltimore
ANDERSON, F. E.	Childs	Cecil
BENSON, E. V.	Baltimore	*Baltimore City*
BURRIER, E. R.	Baltimore	*Baltimore City*
CLARK, N. L.	Laurel	Prince George
DENNIS, S. C.	Ocean City	Worcester
FURST, W. A.	Baltimore	*Baltimore City*
GOELTZ, A. R.	New York	*New York City*

NAME.	POST OFFICE.	COUNTY.
GRACE, W. S.	Easton	Talbot
KEMP, W. B.	Welcome	Charles
LEDNUM, J. M.	Preston	Caroline
MCBRIDE, M. W.	Frederick	Frederick
MARTINEZ, S. C.	Salvador	*Honduras*
MARTZ, A. D.	Frederick	Frederick
MILLER, J. A.	Parkton	Baltimore
MUDD, K.	La Plata	Charles
O'CONOR, J. G.	Baltimore	*Baltimore City*
POSEY, G. B.	Riverside	Charles
ROBY, V.	Pomfret	Charles
RUPPEL, M. H.	Baltimore	*Baltimore City*
SONNENBERG, H. T.	Bladensburg	Prince George
STALEY, L. H.	Washington	*District of Columbia*
STANTON, A. C.	Grantsville	Garrett
TOLSON, R. L.	Silver Spring	Montgomery
TRIMBLE, E.	Mt. Savage	Allegany
WARFIELD, W. L.	Takoma Park	*District of Columbia*
WARTHEN, N. R.	Kensington	Montgomery
WHITE, W. H.	College Park	Prince George

SOPHOMORE CLASS.

ALBERT, C. M.	Pen Argyl	*Pennsylvania*
AMES, H. P.	College Park	Prince George
BIERMAN, H. E.	Berwyn	Prince George
BLANKMAN, S. W.	Baltimore	*Baltimore City.*
BOUGHTON, W. E.	Washington	*District of Columbia*
CRAPSTER, B. W.	Taneytown	Carroll
DAVIS, M. E.	Baltimore	*Baltimore City,*
DEMARCO, L. H.	Baltimore	*Baltimore City,*
GREENBERG, N. A.	New York	*New York City*
GRIFFIN, S. E.	Highland	Howard
HATTON, J. W. F.	Piscataway	Prince George
HEALY, R. S.	New York	*New York City*
HULL, W. B.	Westminster	Carroll
KOEHLER, H. S.	Blairsville	*Pennsylvania*
MAYFIELD, M. B.	Washington	*District of Columbia*
MERRICK, E. J.	Sudlersville	Queen Anne
MORSE, G. B.	Riverdale	Prince George
MUNNIKHUYSEN, W. B.	Bel Air	Harford
NEWNAM, S. H.	Church Hill	Queen Anne
POWELL, E. E.	Baltimore	*Baltimore City*
REICHARD, J. R.	Fairplay	Washington
REUBERT, E. F.	New York	*New York City*
ROBINSON, W. K.	Franktown	*Virginia*
RUSSELL, E. T.	Crisfield	Somerset
SHEPHERD, J. H.	Washington	*District of Columbia*
TRAX, G. P.	Easton	Talbot
WEST, R. P.	Rapidan	*Virginia*
WHITE, C. M.	Ottoway	Garrett

FRESHMAN CLASS.

AULT, G. N.	Baltimore	*Baltimore City*
BRANHAM, T. R.	Baltimore	*Baltimore City*
COSTER, J. B.	Frazier	Calvert

NAME.	POST OFFICE.	COUNTY.
Crew, S. A.	Sparrows Point	Baltimore
Deely, H. U.	Windsor Hills	*Baltimore City*
Edwards, D. B.	Atlantic City	*New Jersey*
Fletcher, W. T.	Alexandria	*Virginia*
Ford, H. S.	Fairmount	Somerset
Goldsborough, P. F.	Easton	Talbot
Gray, J. B.	Prince Frederick	Calvert
Gray, R. T.	Grayton	Charles
Green, J. W.	Westover	Somerset
Hamilton, F. H.	La Plata	Charles
Hicks, R. E.	Rockville	Montgomery
Hoffecker, F. S.	Perryville	Cecil
Jeff, L. A.	Baltimore	*Baltimore City*
Lathroum, G. R. I.	Baltimore	*Baltimore City*
Lednum, R. C.	Preston	Caroline
Lyon, T. A.	Hyattsville	Prince George
O'Neill, F. H.	Riverdale	Prince George
Raborg, W. A.	Philadelphia	*Pennsylvania*
Rasmussen, H. A.	Baltimore	*Baltimore City*
Ritter, T. E.	Catonsville	Baltimore
Robinson, C. E.	Franktown	*Virginia*
Rogers, L. R.	Baltimore	*Baltimore City*
Truitt, R. V.	Girdletree	Worcester
White, A.	College Park	Prince George
Williams, E. P.	Woolford	Dorchester
Williams, R. C.	Doncaster	Charles
Worch, C.	Washington	*District of Columbia*

SUB-FRESHMAN CLASS.

Ames, J. H.	Baltimore	*Baltimore City*
Armstrong, E. W.	Magnolia	Harford
Blundon, J. P.	Riverdale	Prince George
Brosius, B. T.	Barnesville	Montgomery
Brosius, E. R.	Barnesville	Montgomery
Brown, R. S.	Gapland	Washington
Buckwald, C. H.	Baltimore	*Baltimore City*
Carpenter, O.	Plum Point	Calvert
Clark, H. A.	Baltimore	*Baltimore City*
Cole, C. A.	Washington	*District of Columbia*
Edson, H. B.	Riverdale	Prince George
Frazee, G. S.	Oldtown	Allegany
Gray, T. D.	Grayton	Charles
Hamilton, A. J.	La Plata	Charles
Harrison, A. Y.	Takoma Park	Montgomery
Hays, R. S.	Barnesville	Montgomery
Hook, W. H.	Towson	Baltimore
Irving, A. E.	Baltimore	*Baltimore City*
Keefauver, L. S.	Berwyn	Prince George
Lears, W. J.	Baltimore	*Baltimore City*
Levin, M.	Baltimore	*Baltimore City*
McKenna, F. J.	Washington	*District of Columbia*
McKenny, R.	Takoma Park	Montgomery
Massey, A. H.	Massey	Kent
Mays, W. I.	Brucetown	*Virginia*

NAME.	POST OFFICE.	COUNTY.
MYERS, A. W.	College Park	Prince George
PEARSON, W. C.	Baltimore	*Baltimore City*
PENNINGTON, V. P.	Millington	Kent
PIERSON, E. H.	Washington	*District of Columbia*
PRICE, L. H.	Barnesville	Montgomery
ROBERTS, E. M.	Oxford	*Pennsylvania*
SHIPLEY, H. B.	College Park	Prince George
STEELE, E. R.	Washington	*District of Columbia*
STEVENS, W. E.	Stevensville	Queen Anne
TODD, R. N.	Hurlock	Dorchester
TULL, J. J.	Crisfield	Somerset
WALLIS, E. C.	Washington	*District of Columbia*
WILSON, F. H.	Bel Air	Harford

PREPARATORY CLASS.

CACERES, F. J.	Guatamala	*Guatamala*
CALWELL, J. S.	Baltimore	*Baltimore City*
COLBORN, C. G.	Windsor Hills	*Baltimore City*
COLBORN, W. T.	Windsor Hills	*Baltimore City*
CONNOR, M.	Philadelphia	*Pennsylvania*
DEMARCO, S. J.	Baltimore	*Baltimore City*
FEAST, H. C. L.	Washington	*District of Columbia*
HAMMOND, W. K.	Baltimore	*Baltimore City*
HAY, G. M.	Baltimore	*Baltimore City*
HEBBEL, E.	Baltimore	*Baltimore City*
HEBBEL, J.	Baltimore	*Baltimore City*
IRWIN, L.	Bethesda	Montgomery
LAKIN, W. C.	Lander	Frederick
LEPPER, R. M.	Hyattsville	Prince George
MORRIS, P.	Faulkner	Charles
ODEND'HAL, F. H.	Baltimore	*Baltimore City*
RENGEL, F.	Oruro	*Bolivia*
RITTER, J. E.	La Plata	Charles
SANFORD, A. G.	Berwyn	Prince George
SMITH, G. E.	Johnson City	*Tennessee*
VILLARIOEL, J.	Mariano	*Bolivia*
WHITE, R.	College Park	Prince George
WIGHAN, A. C.	Baltimore	*Baltimore City*

SECOND YEAR AGRICULTURAL.

CRANE, C. F.	California	St. Marys
GOELTZ, P. W.	New York	*New York City*
MCGINNES, W. H.	Millington	Kent
TAYLOR, J. L.	Wishart	*Virginia*
TRAX, H. C.	Easton	Talbot
WIGHAN, A. C.	Camden	*New Jersey*

SECOND YEAR HORTICULTURAL.

HAAS, I.	Washington	*District of Columbia*
MALCOLM, D. C.	Washington	*District of Columbia*
MORRIS, J. C.	Riverdale	Prince George
TOWERS, I. L.	Chevy Chase	Montgomery

FIRST YEAR AGRICULTURAL.

NAME.	POST OFFICE.	COUNTY.
ALMON, H. F.	Washington	*District of Columbia*
ARISSO, J. J.	College Park	Prince George
AUGUSTUS, W. M.	Fairmont	*West Virginia*
BALDWIN, J. R.	Baldwin	Baltimore
BINDER, P.	Atlantic City	*New Jersey*
BRACK, W. F.	Towson	Baltimore
BURCH, M.	Washington	*District of Columbia*
ETERNA, M.	College Park	Prince George
FOUNTAIN, C. F.	Cambridge	Dorchester
FREERE, C. R.	Tompkinsville	Charles
GILBERT, W. N.	White Hall	Baltimore
MCNEILL, G. H.	Hedgeville	*West Virginia*
ORRELL, E. C.	Greensboro	Caroline
RIDOUT, O.	Annapolis	Anne Arundel
SCAMMELL, R. E.	Brookland	*District of Columbia*
SMEDLEY, B. T.	Forest Hill	Harford
SMITH, R.	Rockville	Montgomery
THOMAS, J. A. W.	Baltimore	*Baltimore City*
WILLIAMS, D.	Ijamsville	Frederick
WILLIAMS, T. H.	Mutual	Calvert

FIRST YEAR HORTICULTURAL.

BARNES, A. P. G.	Coles Point	*Virginia*
BOWERS, W. D.	Frederick	Frederick
HILLEGEIST, W. M. C.	Baltimore	*Baltimore City*
RALSTON, J. F.	Hyattsville	Prince George

UNCLASSIFIED.

DRACH, C. R.	New Windsor	Carroll
DUCKETT, A. B.	Hyattsville	Prince George
MUNNIKHUYSEN, W. F.	Belair	Harford

TEN WEEKS COURSE IN AGRICULTURE.

ALLEN, E. L.	Landover	Prince George
ANTHONY, J. T.	Chestertown	Kent
CHARLTON, D.	Washington	*District of Columbia*
COLLIER, R.	Easton	Talbot
DAVIDSON, L.	Baltimore	*Baltimore City*
FROELICHER, C. M.	Baltimore	*Baltimore City*
GARRETT, J. F.	Mt. Washington	Baltimore
HAYMAN, W. C.	Kingston	Somerset
HINKLE, M. T. M.	Cumberland	Allegany
HUGHES, B. H.	Claremont	*Virginia*
JOHNSON, T. T.	Twiggtown	Allegany
MERRILL, C. L.	Pocomoke City	Worcester
NUTTLE, H. H.	Hobbs	Caroline
PUMPHREY, R. B.	Baltimore	*Baltimore City*
SPARKLIN, D. W.	Federalsburg	Caroline
TWILLEY, N. E.	Salisbury	Wicomico
WARFIELD, E. S.	Cooksville	Howard
WORTHINGTON, D. M.	Relay	Baltimore

TWO WEEKS WINTER COURSE IN HORTICULTURE.

NAME.	POST OFFICE.	COUNTY.
Anderson, N. G.	Ruxton	Baltimore
Beall, E. P.	Derwood	Montgomery
Bennet, H. L.	Baltimore	*Baltimore City*
Bird, Miss A. C.	Laurel	Prince George
Butt, H.	Rockville	Montgomery
Butt, S. I.	Rockville	Montgomery
Campbell, G. D.	Lonaconing	Allegany
Chaney, S.	Laurel	Prince George
Clopper, H. C.	Hagerstown	Washington
Cockerhill, J.	North Fork	*Virginia*
Cox, W. E.	Federalsburg	Caroline
Cramer, W. L.	Frederick	Frederick
Crew, L. H.	Still Pond	Kent
Davidson, L.	Baltimore	*Baltimore City*
Davis, Mrs. C. C.	Washington	*District of Columbia*
Dilworth, E. F.	Baltimore	*Baltimore City*
Dutrow, S.	Hagerstown	Washington
Froelicher, C. M.	Baltimore	*Baltimore City*
Gould, Mrs. F.	Baltimore	*Baltimore City*
Graff, T. T.	Derwood	Montgomery
Haas, Mrs. J. J.	Hyattsville	Prince George
Haas, J. J.	Hyattsville	Prince George
Harris, E.	Cumberland	Allegany
Heitmuller, B. C.	Hyattsville	Prince George
Hicks, F. H.	Philadelphia	*Pennsylvania*
Holt, A.	Hillsboro	Caroline
Howlett, N. H.	Delta	*Pennsylvania*
Hudson, G. C.	Stockton	Worcester
Huff, J. M.	Street	Harford
Keller, C. W.	Harper's Ferry	*West Virginia*
Laing, F. L.	Cumberland	Allegany
Lake, Miss M. B.	Forest Hill	Harford
Lake, Mrs. M. B.	Forest Hill	Harford
McCameron, J. H.	New York	*New York City*
McKenna, F.	White Ferry	*Pennsylvania*
McLane, B. W.	Brooklyn	Anne Arundel
Merbill, L. G.	Kensington	Montgomery
Merrill, F. P.	Kensington	Montgomery
Moore, W. W.	Sandy Spring	Montgomery
Mulliken, G. V.	Pittsburg	*Pennsylvania*
O'Keefe, Mrs. M.	Hyattsville	Prince George
O'Niell, Mrs. M.	Baltimore	*Baltimore City*
Plummer, G. P.	Gaithersburg	Montgomery
Puschell, C. A.	North East	Cecil
Reier, A.	Glen Arm	Baltimore
Reynolds, E.	Bradshaw	Baltimore
Ritter, A. R.	Washington	*District of Columbia*
Roelke, G.	Frederick	Frederick
Shipley, F. H.	Berwyn	Prince George
Sloan, F. W.	Lonaconing	Allegany
Smith, J. D.	Beltsville	Prince George
Snowden, Mrs. J.	Laurel	Prince George
Stevenson, J. T.	Ridgely	Caroline

NAME.	POST OFFICE.	COUNTY.
STEWARD, M. N.	Baltimore	*Baltimore City*
THOMAS, S. P.	Ednor	Montgomery
THOMPSON, C. A.	Ellicott City	Howard
UNDERHILL, A.	New York	*New York City*
WARREN, H. H.	Centreville	Queen Anne
WEAD, MRS. E. G.	Takoma Park	*District of Columbia*
WHITEFORD, C. P.	Whiteford	Harford
WHITEMAN, S. E.	Baltimore	*Baltimore City*
WILLIAMS, H. D.	Federalsburg	Caroline
WOODEN, L.	Baltimore	*Baltimore City*
WOODSON, S. W.	Silver Springs	Montgomery
WOODSON, MRS. N. A.	Silver Springs	Montgomery
WOODWARD, H.	Millersville	Anne Arundel

TEN DAYS COURSE IN POULTRY.

ALMON, MRS. L.	Riverdale	Prince George
BEALL, MISS S. W.	Beltsville	Prince George
BEALL, MISS S.	Beltsville	Prince George
BIRD, MISS A. C.	Laurel	Prince George
BUTLER, MRS.	Staunton	*Virginia*
CLAYTON, MISS L. B.	Fork	Baltimore
CLOWER, MRS. H.	Beltsville	Prince George
COINBERT, E. G.	Hyattsville	Prince George
CRAWFORD, MRS. H.	Hyattsville	Prince George
CROSTHWAIT, MISS M	Hyattsville	Prince George
DANDELD, J. A.	Washington	*District of Columbia*
DILWORTH, E. F.	Walbrook	Baltimore
EARP, MRS. M. C.	Beltsville	Prince George
FARQUHAR, M.	Rockville	Montgomery
FIELDING, MRS. P.	Staunton	*Virginia*
GETTY, H. B.	New Windsor	Carroll
GLADING, MRS. E. H.	Hyattsville	Prince George
GLADING G. W.	Hyattsville	Prince George
HAAS, J. J.	Hyattsville	Prince George
HAAS, MRS. J. J.	Hyattsville	Prince George
HALL, MISS M. S.	Beltsville	Prince George
HAYNE, G. H.	Baltimore	*Baltimore City*
HIGGINS, MISS M. Z.	Beltsville	Prince George
HOPKINS, MISS A.	Laurel	Prince George
HUSTON, MRS. F. A.	Hyattsville	Prince George
KIMBLE, MISS M.	Port Deposit	Cecil
KINDAHL, G. G.	River Springs	St. Marys
LORD, MRS. J.		
MCCAMMON, J. L.	New York	*New York City*
MARTIN, D. A.	Laurel	Prince George
MURRAY, J. D.	Elkridge	Howard
MURRAY, MRS. J. D.	Elkridge	Howard
POWER, MRS. M.	College Park	Prince George
PYWELL, F. E.	College Park	Prince George
REED, M. E.	Berwyn	Prince George
REILLEY, J. S.	College Park	Prince George
SMITH, F. N.	Washington	*District of Columbia*
SMITH, MRS. J. D.	Beltsville	Prince George
SMITH, MRS. M. J.	Hyattsville	Prince George
SNOWDEN, MRS. J.	Laurel	Prince George
STURDEVANT, L. A.	Lock Raven	Baltimore
WHITLOCK, MISS D.	Hyattsville	Prince George
WOOD, MRS. E. J.	Bladensburg	Prince George

SUMMARY OF STUDENTS.

Graduate	6
Senior	21
Junior	29
Sophomore	28
Freshman	30
Sub-Freshman	38
Preparatory	23
Second Year Agricultural	6
Second Year Horticultural	4
First Year Agricultural	20
First Year Horticultural	4
Unclassified	3
Winter Agricultural Course	18
Winter Horticultural Course	66
Winter Poultry Course	43
Total	339

LIST OF PRESIDENTS AT THE MARYLAND AGRICULTURAL COLLEGE.

1.	Prof. Benjamin Hallowell,	President of the Faculty.	1859—1860
2.	Rev. J. W. Scott,	" " "	1860—1860
3.	Prof. Colby,	" " "	1860—1861
4.	Prof. Henry Onderdonk,	" " "	1861—1864
5.	Prof. N. B. Worthington,	" " "	1864—1867
6.	Prof. C. L. C. Minor,	President of the College.	1867—1868
7.	Admiral Franklin Buchanan,	" " "	1868—1869
8.	Prof. Samuel Regester,	" " "	1869—1873
9.	General Samuel Jones,	" " "	1873—1875
10.	Captain W. H. Parker,	" " "	1875—1883
11.	General Augustus Smith,	" " "	1883—1887
12.	Allen Dodge, Esq., Pro Tem.,	" " "	1887—1888
13.	Major Henry E. Alvord,	" " "	1888—1892
14.	R. W. Silvester, LL. D.,	" " "	1892— ——

GRADUATES WITH DEGREES AND ADDRESSES.

The following members of the various graduating classes have been located. Any information leading to further additions, addresses and occupations of Alumni will be gratefully received.

CLASS of '62.

*Franklin, J. B. S.
Sands, W. B., A. B., Lake Roland, Md.

CLASS of '63.

*Calvert, C. B., A. B.

CLASS of '64.

Hall, D., A. M.
Todd, W. B., B. S.

CLASS of '66.

Hall, E. of B., A. B., Millersville, Md.
*Roberts, L., Ph. B.
Waters, F., A. B., West River, Md.

CLASS of '71.

Soper, F. A., A. B., (M. A. '74), Baltimore City College, Baltimore, Md.

CLASS of '73.

*Henry, R. S., A. B., (M. A. '75).
Miller, O., A. B., (M. A. '75).
Regester, J. A., A. B.
Worthington, D., A. B.
Worthington, W., A. B.

CLASS of '74.

Coffren, J. H., B. S., (M. A. '77).
Davis, H. M., A. B., (M. A. '77). Poolesville, Md.
Griffith, L. A., A. B., (M. A. '77), Upper Marlboro, Md.
Norwood, F. C., A. B., (M. A. '77), Frederick, Md.

CLASS of '75.

Gray, J. B., A. B., (M. A. '78), Prince Frederick, Md
Hyde, J. F. B., A. B., 1803 Bolton Street, Baltimore, Md.
Lerch, C. E., B. S., Lerch Bros., 110 Hanover Street, Baltimore, Md.
Miller, L., B. S., El Paso, Texas.

CLASS of '76.

*Blair, W. J., B. S., (M. S. '79).
Thomas, T. H., B. S., Maddox, Md.
*Worthington, J. L., B. S.
Preston, J. S., B. S., 815 N. Charles St., Baltimore, Md.

CLASS of '77.

*Beall, R. R., B. S.
Emack, E. G., B. S., District Building, Washington, D. C.
*Thomas, G., B. S.
Truxton, S., B. S.

CLASS of '78.

Thomas, W., B. S., Westminster, Carroll Co., Md.

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*Deceased.

CLASS of '80.

Gale, H. E., A. B., 260 W. Hoffman St., Baltimore, Md.

CLASS of '81.

Houston, T. T., A. B., Baltimore, Md.
Mercer, R. S., A. B.
Porter, W. R., A. B.
Rapley, R. R., B. S., 1931 16th St., N. W., Washington, D. C.
Thomas, W. H., A. B., Westminster, Md.
Wood, C. W., A. B.

CLASS of '82.

Bowen, P. A., Jr., A. B., 1413 G. St., N. W., Washington, D. C.
Freeland, H., A. B., Mutual, Md.
Saunders, C. A., A. B.
*Stonestreet, J. H., A. B.
Wenner, C., A. B.

CLASS of '83.

Chew, R. B. B., A. B., 512 F St., N. W., Washington, D. C.
Kirby, W. A., A. B., Trappe, Md.
*Lakin, W. A., A. B.
Rapley, E. F., A. B., 628 Louisiana Ave., Washington, D. C.

CLASS of '84.

Martin, F., B. S.
Lakin, W. T., A. B., Cumberland, Md.

CLASS of '88.

Chambliss, S. M., A. B., News Building, Chattanooga, Tenn.
Hazen, M. C., B. S., City Surveyor, Washington, D. C.
Johnson, L. B., A. B., Morganza, Md.
*Sigler, W. A., B. S.
Smith, R. E., B. S., Ridgely, Md.
Tolson, A. C., A. B., Gunther Building, Baltimore, Md.
Weems, J. B., B. S.

CLASS of '89.

Griffith, T. D., B. S., Redland, Md.
Lewis, G., B. S.
Pindell, R. M., B. S., Civil Service Commission, Washington, D. C.
*Saulsbury, N. R., B. S.
Witmer, F., B. S., Hagerstown, Md.

CLASS of '90.

Calvert, R. C. M., B. S., Bangalore, India.
Keech, W. S., B. S., Md. National Bank Building, Towson, Md.
Manning, C. C., B. S., 16 Avon St., Portland, Me.
*Niles, E. G., B. S.
Russell, R. L., B. S., Anadarko, Okla.
Soles, C. E., B. S., McKeesport, Pa.

CLASS of '91.

*Branch, C., B. S.
*Langley, J. C., B. S.
Latimer, J. B., B. S., Broomes Island, Md.
*Penn, S., B. S.
Veitch, F. P., B. S., College Park, Md.

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*Deceased.

CLASS of '92.

Besley, F. W., A. B., Johns Hopkins University, Baltimore, Md.
Brooks, J. D., A. B., Medical Dept., care War Dept., Washington, D. C.
Calvert. G. H., A. B., 425 D St., N. W., Washington, D. C.
Chew, F., B. S.
Childs, N., B. S., Millersville, Md.
Gambrill, S. W., B. S., Fidelity and Deposit Co., 502 Fidelity Bldg., Baltimore, Md.
Johnson, E. D., A. B., West Pittston, Pa.
Ray, J. E., A. B., Columbian Building, Washington, D. C.

CLASS of '93.

Alvey, C., B. S., Hagerstown, Md.
Buckley, S. S., B. S., College Park, Md.
Graft, G. Y., B. S., 3323 Fourteenth St., N. E., Washington, D. C.
Holzapfel, H. H., Jr., B. S., Hagerstown, Md.
Lawson, J. W., B. S., Southern Railway, Washington, D. C.
Sherman, H. C., B. S., Columbia University, New York, N. Y.

CLASS of '94.

Best, H., B. S., Birdsville, Md.
Bomberger, F. B., B. S., (M. A. '02), College Park, Md.
Brown, A. S., B. S., 1432 S St., N. W., Washington, D. C.
Cairnes, C. W., B. S., U. S. Revenue Cutter Service, Treasury Department, Washington, D. C.
Chiswell, B. M., B. S., Florence Court, Washington, D. C.
Dent, H. M., B. S.
Foran, T. E., B. S., Port Deposit, Md.
Key, S., B. S., (M. S. '02), 1733 H St., N. W., Washington, D. C.
*Pue, R. R., B. S.
Sudler, M. T., B. S., (M. S. '02), University of Kansas, Lawrence, Kan.
Weimer, C. H., B. S., Shamokin, Pa.

CLASS of '95.

Bannon, J. G., B. S.
Claggett, G. H., B. S., Upper Marlboro, Md.
Compton, R., B. S., Woodmont, Conn.
Crapster, W. B., B. S., 402 Sixth St., N. W., Washington, D. C.
Edelen, G. S., B. S., Central High School, Washington, D. C.
Graham, H. R., B. S., Chestertown, Md.
Harding, S. H., B. S., 1737 F St., N. W., Washington, D. C.
Harrison, R. L., B. S., Geological Survey, Washington, D. C.
*Jones, H. C., B. S.
McCandlish, L., B. S., Reading, Pa.
McDonnell, C. C., B. S., Bureau of Chemistry, Washington, D. C.
Mulliken, C. S., B. S., Brookfield Center, Conn.
Skinner, W. W., B. S., Bureau of Chemistry, Washington, D. C.
Sliger, R. E., B. S., Oakland, Md.
Timanus, J. J., B. S., Towson, Md.
Wilson, G. W., Jr., B. S., Upper Marlboro, Md.

CLASS of '96.

Anderson, J., Jr., B. S., Shreveport, La.
Beale, R. B., B. S., General Electric Co., Schenectady, N. Y.
Crapster, T. G., B. S., U. S. S. Itasca, Baltimore, Md.

*Deceased.

Dirickson, C. W., B. S., Berlin, Md.
*Eversfield, D., A. B.
Heyser, H. H., A. B., Hagerstown, Md.
Laughlin, J. R., B. S., (M. S. '01, M. A., '02), Hagerstown, Md.
Rollins, W. T. S., B. S., Seat Pleasant, Md.
Walker, C. N., B. S., 218 F St., N. W., Washington, D. C.

CLASS of '97.

Calvert, C. B., A. B., College Park, Md.
Cronmiller, J. D., A. B., Laurel, Md.
Gill, A. S., B. S., 215 St. Paul St., Baltimore, Md.
Gill, N. H., B. S., Glyndon, Md.
Graham, J. G. R., A. B., 212 La Salle St., Chicago, Ill.
Heward, H., B. S., Water and Spruce Sts., Philadelphia, Pa.
Lewis, G.. B. S., Straight Creek Coal and Coke Co., Pineville, Ky.
Nelligan, B. S., B. S., District Building, Washington, D. C.
Posey, F., A. B., Frederick, Md.
Queen, C. J., B. S., 165 State St., Brooklyn, N. Y.
Schenck, G. K. W., B. S., 343 Boulevard, Rockaway Beach, N. Y.
Watkins, B., Jr., B. S., Chesterfield, Md.
Welty, H. T., B. S., 349 S. Fourth Ave., Mt. Vernon, N. Y.
Weedon, W. S., B. S. (M. S. '98), Dupont Building, Wilmington, Del.
Whiteford, G. H., B. S., Bellefonte, Pa.

CLASS of '98.

Allnut, C. V., A. B., Nueva Gerosa, Isle of Pines, Cuba.
Barnett, D. C., A. B., (M. A. '07), Cambridge, Md.
Burroughs, C. R., B. S., Tompkinsville, Md.
Cameron, G. W., B. S.
Dennison, R. E., A. B., War Department, Washington, D. C.
Dickerson, E. T., A. B., (M. A. '03), 301 St. Paul St., Baltimore, Md.
Houston, L. J., Jr., A. B., 2310 N. Charles St., Baltimore, Md.
Lillibridge, J. A., A. B., Maryland Steel Co., Sparrows Point, Md.
Mitchell, J. H., M. E., 619 E. Main St., Richmond, Va.
Nesbitt, W. C., B. S., Southern Trust Co., Wilmington, Del.
Peterson, G., A. B., St. Leonards, Md.
Ridgely, C. H., B. S., Sykesville, Md.
Robb, P. L., B. S., Baltimore City College, Baltimore, Md.
Whitely, R. P., A. B., Hyattsville, Md.

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Eyster, J. A. E., B. S., Univ. of Wisconsin, Madison, Wis.
*Galt, M. H., A. B.
Gough, T. R., B. S., Barnesville, Md.
Hammond, W. A., A. B., 218 Law Building, Baltimore, Md.
Kepley, J. F., Jr., M. E., Baltimore Bridge Co., Baltimore, Md.
McCandlish, R. J., B. S., Hancock, Md.
Price, T. M., B. S., Bureau of Animal Industry, Washington, D. C.
Robb, J. B., B. S., Department of Agriculture, Richmond, Va.
*Sedwick, J. O., B. S.
Shamberger, D. F., M. E., Sparrows Point, Md.
*Shipley, J. H., B. S.
Straughn, M. N., B. S., 121 B St., N. W., Washington, D. C.
Whitehill, I. E., A. B., New Windsor, Md.

*Deceased.

CLASS of '00.

Choate, E. S., M. E., Roslyn, Md.
Church, C. G., B. S., 403 6th St., N. W., Washington, D. C.
Ewens, A. E., B. S., Atlantic City, N. J.
*Grason, A. S. R., B. S.
Groff, W. D., B. S., Owings Mills, Md.
Jenifer, R. M., B. S., Md. Geological Survey, Baltimore, Md.
Kefauver, H. J., A. B., (M. A. '01), Frederick, Md.
Peach, S. M., A. B., Upper Marlboro, Md.
Sappington, E. N., B. S.
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Hirst, A R., B. S., Wisconsin Geological Survey, Madison, Wis.
*Lansdale, H. N., B. S.
Mitchell, R. L., B. S., La Plata, Md.
Mackall, L. E., A. B., Calvert Building, Baltimore, Md.
Symons, T. B., B. S., (M. S. '04), College Park, Md.
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Collier, J. P., M. E., 213 Fourth St., Cincinnati, Ohio.
Dunbar, E. B., B. S., Springville, N. Y.
Garner, E. F., M. E., 306 Eddy St., Ithaca, N. Y.
Matthews, J. M., B. S., Fidelity Building, Baltimore, Md.
Mayo, R. W. B., A. B., (M. S. '04), Woman's Hospital, Baltimore, Md.
Peach, P. L., M. E., 306 Eddy St., Ithaca, N. Y.
Page, C. P., M. E., U. S. Navy, care of State, War and Navy Building, Washington, D. C.
Walls, E. P., B. S., (M. S. '05), 80 Main St., Canton, N. Y.

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Burnside, H. W., A. B., Hyattsville, Md.
*Choate, R. P., M. E.
Cruikshank, L. W., M. E., 140 N. 16th St., Philadelphia, Pa.
Gray, J. P., B. S., care of Du Pont Powder Co., Wilmington, Del.
Mayo, E. C., M. E., 2206 Stuart Ave., Richmond, Va.
Merryman, E. W., M. E., Charles St., Extended, Baltimore, Md.
Mitchell, W. R., M. E., City Hall, Baltimore, Md.
Mullendore, T. B., A. B., 602 S. 52d St., Philadelphia, Pa.

*Deceased.

Sasscer, E. R., B. S., Department of Agriculture, Bureau of Entomology, Washington, D. C.
Shaw, S. B., B. S., Department of Agriculture, Raleigh, N. C.
Stoll, E. W., M. E., Philippine Constabulary, Manila, P. I.
Wentworth, G. L., M. E., 355 Madison Ave., New York.

CLASS of '05.

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Hayman, E. T., B. S., Annapolis, Md.
Krentzlin, J. J. A., B. S., State, War and Navy Building, Washington, D. C.
Mackall, J. N., B. S., Maryland Geological Survey, Baltimore, Md.
Nicholls, R. D., B. S., Germantown, Md.
Parker, A. A., B. S., Pocomoke City, Md.
Smith, W. T., B. S., Ridgely, Md.
Snavely, E. A., B. S., 226 Park St., Pontiac, Mich.
Somerville, J. W. P., B. S., Cumberland, Md.
Sturgis, G., B. A., (M. A. '07), Charlotte Hall, Md.
White, W., B. S., 1215 F St., N. W., Washington, D. C.

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Bassett, L. E., B. S, Oakland, Md.
Caul, H. J., B. S., Vega Alta, Porto Rico.
Dixon, R. H., Jr., B. S., Maryland Geological Survey, Baltimore, Md.
Graham, J. J. T., B. S., Mississippi Agr. College, Miss.
Mayer, G. M., B. S., Frostburg, Md.
McNutt, A. M., B. S., 1318 Stephen Girard Building, Philadelphia, Pa.
Mitchell, J. W., B. S., Brookline, Mass.
Ridgway, C. S., B. S., Auburn, Ala.
Showell, J. L., B. S., Berlin, Md.
Thomas, S. P., B. S., Ednor, Md.
Waters, F. R. B., B. S., 1331 G St., N. W., Washington, D. C.
Zerkel, L. F., B. S., (M. A. '07), Luray, Page Co., Va.

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Capestany, R. L., B. S., Guayama, Porto Rico.
Firor, G. W., B. S., Thurmont, Md.
Harper, C. H., B. S., Chestnut Hill Academy, Chestnut Hill, Pa.
Hatton, H. S., B. S., 327½ 8th St., Jersey City, N. J.
Holloway, E. S., B. S., N, Y. Military Ac., Cornwall-on-Hudson, N. Y.
Hudson, M. A., B. S., Home Educational Co., Waxahachie, Texas.
Linnell, F. E., B. S., 327½ 8th St., Jersey City N. J.
Mahoney, W. T., A. B., Jefferson High School, Jefferson, Md.
Mudd, J., P., M. E., Midvale Steel Co., Philadelphia, Pa.
Owings, H. H., B. S., Mann Building, Utica, N. Y.
Vocke, S. T., B. S., 2648 Maryland Ave., Baltimore, Md.
Williar, H. D., B. S., Howard and Monument Sts., Baltimore, Md.

*Deceased.

CLASS of '08.

Becker, G. G., B. S., Arkansas Experiment Station, Fayetteville, Ark.
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Brigham, R., B. S., Brinklow, Md.
Broughton, L. B., B. S., College Park, Md.
Byrd, H. C., B. S., 1204 K St., N. W., Washington, D. C.
Cooper, B. R., B. S., Worton, Md.
Day, G C., B. S., Castleton, Md.
Firor, J. W., B. S., Bethel Military Academy, Warrenton, Va.
Hoshall, H. B., B. S., Ellicott City, Md.
Long, U. W., B. S., Selbyville, Del.
Lowrey, S. L., B. S., 15 N. High St., Baltimore, Md.
Oswald, E. I., B. S., Chewsville, Md.
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Plumacher, E. H., B. S., Maracaibo, Venezuela.
Plumacher, M. C., B. S., Philippine Constabulary, Manila, P. I.
Reeder, W. C., B. S., University of Penn., Dept. of Veterinary Med., Philadelphia, Pa.
Ruffner, R. H., B. S., College Park, Md.
Rumig, F. E., B. S., San Sebastian, Porto Rico.
Shamberger, J. P., B. S., Parkton, Md.
Silvester, R. L., B. S., College Park, Md.
Solari, O, S., B. S., 165 Botetourt St., Norfolk, Va.
Somerville, W. A. S., M. E., Cornell University, Ithaca, N. Y.
Stinson, H. W., B. S., Philippine Constabulary, Manila, P. I.
Sylvester, C. S., B. S., Indianapolis, Ind.
Thomas, W. H., B. S., Lares, Porto Rico.
Warren, N. L., B. S., Selbyville, Del.
Warthen, C. A., B. S., Barber and Ross Construction Co., Wash., D. C.
Wilson, R. A., B. S., Canal Zone, Panama.

CLASS of '09.

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Boyle, W., B. S., Institute of Technology, Boston, Mass.
Burroughs, P. E., B. S., Maryland Geological Survey, Baltimore, Md.
Cory, E. N., B. S., College Park, Md.
Coster, H. M., B. S., Care of Pa. R. R. Laboratory, Altoona, Pa.
Dryden, F. H., B. S., B. C. and P. Railway Co., Salisbury, Md.
Gorsuch, J. S., B. S., 706 Arlington Ave., Baltimore, Md.
Griffin, J. P., B. S., Highland, Md.
Haslup, J. E., B. S., Savage, Md.
Holloway, J. Q. A., B. S., Maryland Geological Survey, Baltimore, Md.
Jarrell, T. D., B. S., College Park, Md.
Jarrell, L. O., B. S., Greensboro, Md.
Koenig, M., B. S., 1050 Gilmor St., Baltimore, Md.
Maslin, W. R., B. S., Box 92, Warwick, R. I.
Mayer, C. F., B. S., Box 246, Staunton, Va.
Spalding, B. D., B. S., Churchville, Md.
Stabler, A. L., B. S., College Park, Md.
Turner, A. C., B. S., Sollers, Md.

CLASS of '10.

Adams, A. C., B. S., College Park, Md.
Allen, H. H., B. S., Towson, Md.
Cole, W. G., B. S., Mass. Institute of Technology, Boston, Mass.
Cole, W. P., Jr., B. S., Towson, Md.
Donaldson, J. L., B. S., Berwyn, Md.

Duckett, J. W., B. S., Davidsonville, Md.
Frere, W. J., B. S., P. R. R. Co., Baltimore, Md.
Gray, S. P., B. S., Nanjemoy, Md.
Hamilton, G. E., B. S., Maryland Geological Survey, Baltimore, Md.
Harding, T. S., B. S., Laurel, Md.
Maxwell, F. J., B. S., College Park, Md.
Saunders, O. H., B. S., Fort George Wright, Spokane, Washington.
Stabler, S. S., B. S., Nanjemoy, Md.
Stanton, T. R., B. S., College Park, Md.
Strickland, C. W., B. S., Princess Anne, Md.
Tydings, M. E., B. S., Havre de Grace, Md.
Ward, F. R., B. S., Agricultural High School, Sparks, Md.
Woolford, M. H., B. S., Cambridge, Md.

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